ABSTRACT

RESPONSE GROWTH AND YIELD AT THREE OF SOYBEAN VARIETY (*Glycine max*. [L] *Merr*.) ON SOME AVAILABLE SOIL WATER DEPLETION

By

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The aims of this research was to find out the effect of available soil water depletion fraction (p) on the growth and yield of three varieties of soybean (*Glycine max*. [L] *Merr*.). The research was conducted in the plastic housing, integrated laboratory of the Faculty of Agriculture, University of Lampung in November 2013 to January 2014. This study used a factorial in a completely randomized design (CRD) with 2 factors, namely factor I **(**Available soil water depletion**)** and Factor II (Variety). Each treatment consisted of 3 levels, the first factor consists of P_1(0.2), P_2(0.4) and P_3(0.6), and consists of a variety of factors II Wilis (V_1), the Kaba (V_2) and Tanggamus (V_3), with repeats 3 times in order to obtain 27 combinations of experimental units. Reference evapotranspiration measurements on P(0.2) is done using the grass plant.

The results showed that treatment of depletion fraction (p) and the varieties were not significantly different, and their interactions on the growth and production of all components. All three varieties of plants do not experience stress during growth and development stage until harvest. The highest production was in Tanggamus varieties (V_3) in P_1(0.2) of 17.86 g/pot with a total of 80.430 ml of irrigation water, followed by Kaba (V_2) on P_1(0.2) 15.23 g/pot with total irrigation water 75.800 ml and Willis (V_1) on P_3(0.6) 14.96 g/pot with a total of 75.600 ml of irrigation water. From results of the study can conclused that irrigation water demand in each variety according to the rate of depletion fraction ie the smaller the value the higher depletion fraction of the value etc except the Wilis varieties (V_1). Crop yield response factor to water (Ky) greater than 1 (Ky> 1), this means that the soybean crop is sensitive to water shortages.

Keywords: fraction depletion, irrigation, soybean, and production.