

## The effects of time spraying amino acid on water deficit stress on yield, yield components and some physiological characteristics of grain corn (TWC647)

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### Summary

This study investigated the effects of time spraying amino acid on the yield and yield components and some physiological traits in grain corn (*Zea mays* L. var. TWC647) under water deficit. Research was conducted with complete randomized block experimental design with split-plot arrangement with three replications. In this experiment, the main plots consisted of water deficit with 3 levels: cut irrigation in vegetative (A1), cut irrigation in flowering (A2), cut irrigation in grain filling (A3). Subplots were time spraying amino acid in 3 levels: Control-non amino acid (B1), amino acid spraying before water deficit stress (B2), and amino acid spraying after water deficit stress (B3). Results of analysis of variance showed that the interaction effects of water deficit and time spraying amino acid on the characteristics of number of rows per spike, number of grains per row, 1000 grains weight, grain yield, biological yield, harvest index, protein yield, protein percentage and proline were significant at the 5% level. However, there was not significant number of the plants per square meter and number of the spikes per plant of water stressed plants treated with time of amino acid foliar application. In this study, the maximum grain yield (7406.1 kg/ha<sup>-1</sup>) and number of the plants per square meter, number of spikes per plant, number of rows per spike, number of grains per row, 1000 grains weight, proline, harvest index were obtained from cut irrigation in vegetative with amino acid foliar before water deficit stress. Seed protein percentage increased as the amount of water deficiency. Lowest grain yield was assigned of cut irrigation in flowering with control (none amino acid) with (2258.6 kg/ha<sup>-1</sup>) had no significant difference with cut irrigation in grain filling with control treatment and the lowest 1000 grains weight (183.4 g) allocated to the same treatment.

**Key words:** corn, water deficit stress, time spraying amino acid, yield, yield components