

## **Effect of Foliar Application of Zinc and Manganese on the Yield and Yield Components of Maize (*Zea may L.*) Cultivars Under Water Deficit Stress**

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### **Abstract**

In order to study the effects foliar application of Zn and Mn of deficit irrigation at vegetative and reproductive growth stages of two corn cultivars, including SC-301 and SC-400, an experiment was conducted during the 2008 growing season at Experimental Field of the Agricultural Faculty of Buali-Sina University. The experiment was a factorial split plot arrangement on the basis of randomized complete block design with three replications. The irrigation levels were full irrigation, deficit irrigation stress at 8-10 leaf stages and milk till dough ripening stages of grain. Foliar applications were without foliar application, foliar application of Zn and foliar application of Mn. Two corn cultivars (SC-301 and SC-400) were allocated to subplots. Growth degree day until flowering, number of kernel per ear, kernel weight, biological yield, economical yield, harvest index, grain filling period, water use efficiency, and grain protein content were measured and calculated. Effects of drought stress, foliar application and cultivars on treatments the mentioned were significant. Water deficit stress at 8-10 leaf stages and without foliar application had the most negation effect on growth degree day until flowering, grain filling period, number of kernel per ear and economical yield in this study. The highest value of the mentioned treatments was reached for foliar application zn and full irrigation. The most water use efficiency, 1.44 kg/m<sup>3</sup>, was obtained with water deficit stress at the reproductive stage and the least value, 1.21 kg/m<sup>3</sup>, was obtained with water deficit stress at the vegetative stage. The Most grain protein content, about 9.8 percent, was obtained with ZN foliar application and water deficit stress at the reproductive stage.

**Keywords:** *Corn, Drought stress, Zn, Mn*