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**Determination of Crop Water Stress Index (CWSI) and Irrigation Timing by  
Utilizing Infrared Thermometer Values on the First Corn Grown Under  
Çukurova Conditions**

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**Abstract:** This study was carried out to determine crop water stress index (CWSI) using the infrared thermometer data; to estimate irrigation time from this index and to obtain yield-CWSI relationships for maize under Çukurova Region conditions. In this research, irrigation water levels were 100% (I 100 ), 80% (I 80 ), 60% (I 60 ), 40% (I 40 ), 20% (I 20 ) and 0% (I 0 ) of water depleted in the 120 cm soil profile in every ten days, so different level of water stress treatments were created. A total of 752 mm and 823 mm of irrigation water were applied to I 100 irrigation treatment, in which water depletion was determined as 999 mm and 1052 mm in 1993 and 1994, respectively. Grain yield obtained from the above mentioned irrigation treatment was 1001.5 kg/da in the first year and 1003.5 kg/da in the second year of the experiment. In the first and second experimental year, non-water-stressed (LL) and water-stressed (UL) baselines were developed as  $T_c - T_a = 2.9 - 2.66$  VPD and  $T_c - T_a = 2.41 - 2.045$  VPD; 4.25 o C and 3.50 o C, respectively. The yield reduction threshold CWSI values were determined as 0.21 using the infrared thermometer (IRT) readings. Linear relationship was also found between grain yield and CWSI.

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