

ABSTRACT

THE DETERMINATION OF COTTON (*Gossypium hirsutum* L.) GENOTYPES FOR IMPROVEMENT OF DROUGHT TOLERANT COTTON VARIETIES

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Turkey is among the countries that will be negatively affected by global climate change in the future. Therefore it is important to improve drought tolerant cotton varieties in terms of [continuousness](#) of cotton production in the future. In this study 48 cotton genotypes which were obtained from foreign countries and Nazilli Cotton Research Station were used as research materials. The purpose of the study was to determine the response of cotton genotypes to water stress and to select water stress resistance/tolerant cotton genotypes. The study was conducted under two locations; Adnan Menderes University Agriculture Faculty and Özalın Agriculture Company Experiment Fields. The cotton genotypes were grown under full (100 %) and deficit (50%) irrigation. The experiment design was Augmented design with four replications.

Water deficit decreased mean seed cotton yield, 1. and 2. Position boll retention rate, boll number, fiber length, uniformity index, and fiber strength, increased mean lint percentage and fiber fineness, and did not affect boll weight, elongation and seed weight.

The result of this study showed that based on seed cotton yield, the irrigation water use efficiency and drought susceptibility index, CABU/CS2-1-83, Coker 208, TKY 9409, TKY 9304, Semu SS/G, Nazilli 84-S and Taşkent 1 genotypes would be drought sensitive, Lachata, MS-30/1, NGF-63, NP EGE 2009, Eva, NIAB 111 ve NIAB 999 genotypes would be drought tolerant and would be used as a parent in the breeding program to improve drought tolerant cotton genotypes.

Key words: Cotton, water stress, yield and fiber quality.