JKAU: Met., Env. & Arid Land Agric. Sci., **vol. 13,** pp. 43-52 (1422 A.H. / 2002 A.D.)

Evaluation of Three Techniques for Characterizing Wheat Plant Water Status

ALI ABDULLAH ALDERFASI and YAHYA ALI REFAY
Plant Production Department, College of Agriculture, King Saud University, Riyadh, Saudi Arabia

ABSTRACT. A field study was conducted during the growing seasons of 1994 and 1995 to evaluate the potential of three techniques for estimating water status in wheat. Pressure chamber was used to measure leaf water potential (LWP), and simple technique based on Barrs' equation (1968) for estimating leaf relative water content (RWC), while infrared thermometer (IRT) used for measuring plant canopy temperature (Tc). Four wheat genotypes were grown under three levels of irrigation treatments to test these techniques. All three techniques were found to be suitable and provided a good indication of water status in wheat. However, IRT was found to be more reliable and faster than pressure chamber and RWC. Also, IRT was more useful in separating genotypes according to their response to drought stress. Those genotypes, which had cooler canopies during the growing season, had larger biomass and hence they indicated being more drought resistant than others.

KEY WORDS: Biomass, LWP, RWC, Tc, Evaluation, Technique, Water stress, Wheat, Genotypes.