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VARIETAL RESPONSE OF WHEAT TO LOW WATER STRESS AT DIFFERENT GROWTH STAGES IN EFFECT ON LEAF AREA INDEX (LAI)

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ABSTRACT

Three varieties of wheat viz: Pak 81, Punjab 85 and Kohinoor were subjected to low water stress (-10 bars on leaf water potential basis) at tillering, jointing, boot and anthesis stages of growth. Crop was sown in a split plot design. Water potential of the central leaves was determined on alternate day using Pressure Bomb till the desired level of -10 bars was achieved. At this stage LAI in each treatment was determined using leaf area meter. Afterward water stress was terminated by applying 7.5 hectare centimeter water by calibrated buckets. Stressed plots were protected from rain water by polyethylene sheets placed over iron fra[illegible]s when needed. Results of the two years data revealed that water stress significantly reduced the LAI at all growth stages. In stressed plots, LAI could not be recovered [illegible] sufficient water supply in later stages of growth. Varieties differed only at tillering and anthesis stages. Pak [illegible] and Kohinoor were least affected at both of these stages. However at anthesis, Kohinoor maintained highest LAI indicating its tolerance to desiccation followed by Punjab 85 and Pak 81. Interaction between stress x varieties was non-significant at tillering and jointing stages while significant at boot and anthesis. However years x stress x varieties interaction was non-significant at each stage of water stress.

INTRODUCTION

In agricultural situation, crop plants are usually under stress of one sort or another and their ability to withstand such stresses are of great economic importance. In addition many agricultural problems arise from the fact that good lands exist in areas that have difficult or unfavorable climatic conditions out of which water deficit stress hit a major part of arable land on the globe. Less than 10% of land surface has been left suitable for cultivation (Bidwell 1974). The worldwide losses in yields from water stress probably exceed the losses from all other causes combined (Kramer 1980). It has long been acknowledged that shortage of water at any stage of crop development imposes a major constraint on the conversion of solar energy into food in almost all agricultural regions of the world. This limitation occur because water loss is the inevitable consequences of