

PHYSIOLOGICAL DETECTION OF WATER AND NITROGEN DEPRIVATION

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Abstract. *Water and nitrogen are crucial environmental factors, which are modifiable by farmers and main in controlling plant growth and development. The supply of nitrogen is crucial for vegetative growth and the role of nitrogen in agricultural production is intimately connected with photosynthesis. Photosynthetic rate correlates closely with leaf nitrogen content and water status of plants. The main goal of this research was to investigate some physiological parameters of barley genotypes under nitrogen and water deprivation conditions at anthesis growth stage. Dry weight of plants was determined with thermo-gravimetric method. Relative chlorophyll content as SPAD unit measurement was applied to follow the relative chlorophyll contents of leaves. The water status of plants was established by measuring relative water content (RWC) of leaves. Chlorophyll fluorescence induction method was used to examine potential photochemical activity (Fv/Fm). Based on the measured parameters, genotypes showed differences. Some parameters are useful for choosing more photosynthetically active barley genotypes in the double-haploid populations to be used in breeding barley lines with increased productivity under relatively low nitrogen and water supply.*

Keywords: nitrogen, drought, barley, SPAD, Fv/Fm

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