

Agro-physiological and biochemical assessment of half-sib families of alfalfa for tolerance to water stress.

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Abstract:

154 Half-sibs families from the offspring of a cross between three alfalfa cultivars (Mumuntanas, Sardi and Erfoud) were evaluated for their tolerance to water stress in summer field conditions the Haouz region. The test was first subjected to a moderate water deficit during the months of April and May, followed by a severe water deficit in early July until mid-September including irrigation was stopped throughout this period.

The evaluation of the trial focused on agronomic, physiological and biochemical parameters related to the tolerance to water stress. The results showed that there exist significant differences between the half-sib families of alfalfa tested towards the majority of agronomic parameters, physiological and biochemical study. Also we found that the yield of green material has been positively correlated with the contents of the sheets proline, soluble sugars, and chlorophyll. Therefore, these parameters are indicators for the selection of half-brothers families having a good forage potential as a parent for the constitution of a synthetic variety. It could value dry lands who suffer from the scarcity of irrigation water.

Keywords: *Alfalfa*, water deficit, mortality rate, agronomic parameters, physiological parameters, biochemical parameters.