

Poster Abstract - C.05

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## IDUWUE: A PROJECT FOR THE IMPROVEMENT OF WATER-USE EFFICIENCY AND DROUGHT TOLERANCE OF DURUM WHEAT

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*durum wheat, Triticum durum, drought tolerance, water-use efficiency*

In the Mediterranean basin, durum wheat is mainly grown in drought-prone areas. Therefore, improving water-use efficiency and tolerance to drought represent major breeding goals. IDuWUE (Improving Durum wheat for Water Use Efficiency and yield stability through physiological and molecular approaches) is a collaborative project among Research Centres in Italy, Spain, Morocco, Tunisia, Syria and Lebanon funded by the European Union aimed at investigating the genetic variability for water-use efficiency (WUE) and yield stability in durum wheat genotypes grown in the Mediterranean drought-prone areas. A number of morpho-physiological traits (e.g. early vigor, flowering time, leaf rolling, number of fertile tillers, etc.), WUE, WUE-related traits (e.g. carbon isotope discrimination, canopy temperature, chlorophyll fluorescence, etc.), yield and its components are being investigated on a RIL population (249 lines) and a collection of ca. 190 durum wheat accessions during the first year of the project in field trials carried out under irrigated and rainfed conditions. The results of the QTL analysis carried out on the mapping population will be integrated with an LD association study performed on the collection of accessions. In this respect, the population structure has been preliminarily estimated with AFLPs and will be further investigated with SSRs. Recent work has indicated the presence of a high level of LD in durum wheat (Maccaferri et al., 2005, Molecular Breeding, 15:271-289). The molecular and phenotypic results so far obtained on the collection of accessions will be presented and discussed.