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Poster Abstract – C.10

MICRO-MORPHOLOGICAL TRAITS MEASURED BY IMAGE ANALYSIS, USEFUL FOR SELECTING DROUGHT TOLERANT WHEAT GENOTYPES

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The need to realize appropriate yields in hot-dry environments is an old, but always actual, challenge of researchers, particularly for wheat, one of more important cereals economically.

Nowadays this challenge is carried out by all the scientific knowledge available in agronomic research.

The present study talks about micro-morphological characterization of anatomic structures by image analysis system connected to microscope. This system is able to realize all the measures of anatomic structures easily and it investigates their involvement in giving drought-tolerance feature to durum wheat.

Five Italian varieties of *Triticum durum* Desf. were analyzed. They were grown in three environments that were rainy different during vegetative cycle in the 1989-90 cropping season.

The vascular system was analyzed in the first and last internode (peduncle) and in flag leaf, in this leaf the stomatic apparatus was analyzed too, for a total of 49 parameters.

The obtained data were subjected to analysis of variance – one-way ANOVA (2 factors: 3 Location x 5 Varieties), mixed model; therefore the variation sources that resulted significant were undergone to a mean multi comparison test and the significance were tested with the Duncan test. All parameters were also submitted to correlation analysis (Pearson Correlation Analysis). Many parameters have showed interesting positive and negative associations, even with agronomic features such as production, 1000 seeds weight and hectoliter weight.

The varieties recorded values significantly different between them, both for their genetic characteristics and for their different reaction rule in the three different cultivation climatic environments.

This particular type of analysis, carried out only on micro-morphological traits of wheat plant, was able to characterize durum wheat varieties that adapt better to the difficult water stress conditions, ensuring satisfying yields.