

CHARACTERIZATION OF TEMPERATE RICE GENOTYPES PERFORMANCE IN AEROBIC SOIL CONDITIONS

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water shortage, drought tolerant, plant performance

Increasing the efficiency of water use in agricultural systems is an essential priority worldwide, including the Mediterranean area. In many areas of the world, global changment of climatic conditions are associated with a drastic reduction of water availability and rice, as many other crop species, is highly water demanding. In this contest, the development of rice cultivars with improved tolerance to cultivation under reduced water regime is a major objective.

In the present study, a panel of upland and siml-upland genotypes from Egypt and China and selected lines from CRA-RIS breeding programmes, together with some Italian varieties, were evaluated in aerobic soil conditions. The field experiments were carried out at CRA – Rice Research Unit of Vercelli, Italy, in 2007. The average rainfall (April-October) was 345,5 mm.

Rice was directly dry-seeded at 3 cm of deep with a rate of 180-200 kg ha⁻¹ on 30th April. The experimental plots consisted of two rows, 8 m long, with 0,30 m and 0,14 m spacing between plots and rows respectively. During the cropping season (period from May to October) irrigation treatments by flushing were performed. The total water supply (rainfall plus irrigation) was 5132 m³ ha⁻¹, being about one fourth of the water needed in conventional submersion. In each plot, agronomical (grain yield, harvest index, tiller density, panicle sterility, kernels numbers/panicle and 1000 grain weight), morpho-phenological (plant height, panicle length, flowering/maturity date), phitosanitary and merceological traits were evaluated. For measurement of grain yield, harvest index and panicle density all the plants in one linear meter of row were sampled.

The survey allowed the identification of three best performer varieties under aerobic soil from the CRA nursery: ISC695/1, ISC LNC and ISC2696. These lines showed higher yield performance with values comparable to the best performers already identified from the panel of cultivated varieties. From the exotic germoplasm, the Egyptian lines GZ 8450-19-6-5-3, GZ 6296-1-2-1-2 were the best genotypes, with yield values comparable with Italian genotypes.

This study was supported by the Commission of the European Communities within the VI FP – Project CEDROME (INCO-CT2005-015468).