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Evaluating chickpea genotypes for abiotic stress tolerance

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Being a leguminous crop chickpea (*Cicer arietinum* L.) is important for the establishment of sustainable and economically viable farming systems. Chickpea is grown and consumed across five continents, making this crop more important in international markets than other food legumes. Adaptation trials of 15 accessions of chickpea, 13 from the ICARDA collection and 2 from the Portuguese national catalogue, took place during two years in two different countries (Portugal, Syria). The trials were conducted under rainfed conditions using a late sowing date to naturally expose the plants to drought and heat stress. The accumulated results indicate a high variability in the yield response among genotypes and regions. In Portugal differences between the most productive accession and the least productive one was higher than 1000 kg/ha in 2009 (drought year) and than 1500Kg/ha in 2010 (rainy year). In general, genotypes that fasten their development cycle showed higher grain yield, especially in drought years. Comparing the two years, we observed three groups of genotypes: i) Stable genotypes, well adapted to distinct environments (like ILC588). ii) Genotypes adapted to adverse conditions, but not responding to favourable conditions (ICL 216); this genotype was also among the best performers under drought conditions in Syria. iii) Genotypes adapted to good conditions, but with bad performance under adverse conditions (ICL 3279). Across the two locations, Portugal and Syria, FLIP03-145C, FLIP87-8C and ILC 588 were on the top 5 during 2009. In 2010, only FLIP87-8C stand out to be among the best performers under drought conditions in both countries.