

## EVALUATION OF CEREAL RESPONSE TO DROUGHT WITH THE PLANTARRAY GRAVIMETRIC-BASED PLATFORM

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Drought is the most significant environmental stress in agriculture and its occurrence and severity are expected to increase due to climate changes. In the Mediterranean region, a change in the rainfall regime, especially a long period of water scarcity between two rainfall events, will profoundly impact the productivity of economically important crops, such as barley and wheat. Consequently, dissecting cereal response to drought is pivotal for developing more resilient cultivars. Here we report on two experiments run with the PlantArray physiological phenotyping gravimetric platform, which continuously and simultaneously measures the momentary-varying water flux in the Soil-Plant-Atmosphere for each plant in the array under varying ambient conditions. Two sets of genotypes were tested in the iCore facility at the University of Jerusalem: A) 150 barley doubled-haploid lines deriving from the cross between the two-rowed cultivars Chanell and Formula, which display isohydric/high WUE and anisohydric/mid WUE behaviors, respectively. B) 85 spring hexaploidy wheat accessions from the Whealbi collection, which were previously tested for their response to drought under field and controlled conditions. The direct measurement of plant water balance and biomass gain enables a quantitative comparison of the plant response to different treatments and provides a prediction of plant growth and productivity in an efficient, non-invasive manner. Recently, a PlantArray platform composed of 72 units has been installed at CREA-GB, which will be enriched with tools and methods for counting stomatal density and activity. This work is funded by the project Plant-RED-

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