



PROTECTING OUR DROUGHT EXPERIMENT: ADAPTING TO UNEXPECTED HEAVY RAINS AT IAS-CSIC IN CÓRDOBA

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At the CeresLab, IAS-CSIC, in Córdoba, Spain, our research focuses on oat breeding for adaptation to Mediterranean environments. We tackle both biotic and abiotic stresses through a multi-level approach combining field, physiological, and genomic analyses to understand plant responses from the whole crop down to the cellular level. With droughts becoming more frequent and severe in southern Spain, one of main objectives is to identify key phenotypic traits that contribute to drought tolerance and enhance the resilience of oat crops in these challenging conditions.

Currently, we are conducting a drought experiment with two well-characterized oat genotypes, one susceptible and the other tolerant to water stress. Our study integrates proteomic, physiological, and morphological analyses to examine how drought affects grain filling and to identify key differences between both genotypes. The plants are growing in large pots outdoors in our experimental screenhouse at IAS-CSIC in Córdoba.

Running a drought experiment... in the rain?

However, just as we were about to start the drought treatment—progressively withholding water to mimic Mediterranean dry conditions—nature had other plans.

Over the past two weeks, we have experienced unusually heavy rainfall, leading the Guadalquivir River to overflow and significantly increasing water levels in the reservoirs that will supply the city in the coming years. Ironically, the heaviest rains coincided with the critical time when we needed to start the drought stress treatment. At this point, the plants stop receiving water, which progressively reduces the water content of the soil, mimicking the usual Mediterranean situation.

To maintain the integrity of our drought treatment, we had to act fast and built a temporary shelter over part of the screenhouse to protect half of the plants from excess rain. In addition, we placed wooden pallets underneath the pots to prevent water accumulation at the base.

Behind the scenes: Watch our experiment in action!

We have shared a video [here](#) and on our social media platforms (see below), capturing our team constructing the protective roof, placing pallets, and ensuring our experiment stays on track.

Follow us on social media to stay updated on our ongoing research, scientific conferences, and outreach activities. Join us in exploring the fascinating world of oat research, working towards more sustainable agriculture in the Mediterranean environment!

Follow us and join the conversation!

