

PRIMA-DROMAMED: UNLOCKING THE MEDITERRANEAN MAIZE GERMPLASM TO COPE WITH CLIMATE CHANGE

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Drought is the main problem of agriculture worldwide and is expected to get worse with climate change. Maize, one of the most important crops, is especially vulnerable to drought in a scenario of climate change. We are conducting a three years long project (2021-2023), DROMAMED, financed by the PRIMA call, which objectives are to: 1) assemble germplasm collections of maize adapted to Mediterranean dry areas, pooling and evaluating stress-resistant varieties from the national collections, 2) support innovative farming systems by promoting quality and sustainability of agricultural

models, 3) study genetic factors involved in maize adaptation to drought and heat stress, 4) investigate the physiological and morphological mechanisms involved in maize responses to stresses, 5) establish predictive models and selection criteria for breeding programs focusing on tolerance to stress, and 6) identify new stress tolerant genotypes and knowledge for being used by stakeholders. These achievements will contribute to the sustainability of maize production and mitigation of the effects of stress in present and future climate scenarios. The project intends to 1) valorize Mediterranean germplasm collections, with entries that have been selected for adaptation to a large diversity of stressful environments, 2) promote innovative crop management practices to increase quality and sustainability, 3) capitalize current and new knowledge about mechanisms of tolerance to abiotic stresses, and 4) develop selection tools to improve breeding approaches enhancing maize tolerance to abiotic stresses. DROMAMED will contribute to 1) the progress of knowledge by dissecting the genetic, *biochemical, morphological and physiological mechanisms underlying stress tolerance*, and 2) *capitalize the diversity of maize for cultivation under low inputs in the Mediterranean area leading to rescue germplasm for future agriculture. The social impact will be encouraged in DROMAMED relying on contacts with associations of producers to fulfil farmers' demands, and transfer technical knowledge to facilitate cultivation of the released drought tolerant populations.*