

PROJECT TITLE

Phenotyping of salinity and drought tolerance in promising *Solanum pennellii* introgression lines

CONSORTIUM

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SUMMARY OF THE REPORT

The aim of this collaboration was to use high throughput phenotyping tools to characterize the tolerance of *Solanum pennellii* introgression lines to salinity and water-limiting conditions. *S. pennellii* is a wild species of tomato, which is known to be more salt tolerant than cultivated tomato (*Solanum lycopersicum*). Each introgression line (IL) contains a small portion of a single *S. pennellii* chromosome in the *S. lycopersicum* genetic background. The lines were tested at two levels of soil humidity 20 and 60 % and three levels of salinity (0, 2 and 3 g NaCl/kg soil). Plants were phenotypes throughout the treatment period for vegetative (biomass accumulation, fresh and dry mass, plant height) and reproductive (fruit number, weight, total yield) traits. The results indicate that mild salinity stimulated biomass accumulation in IL7-4-1 and IL8-3 indicating that they have salinity tolerance at the vegetative stage. In contrast, fruit yield in both M82 and IL2-5 were increased by salt stress. Overall, the results indicate that the ILs have complex profiles of salinity tolerance that merit further exploration.