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Poster Communication Abstract – 5.19

ACCELERATE THE IDENTIFICATION AND SELECTION OF DROUGHT RESILIENCE TOMATO GENOTYPES THROUGH IN VIVO PHENOTYPING

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Climate change and the increasing population claims for plant variety and genotypes with increased adaptability to drought. Global water demand for all uses, will increase by 20% to 30% by 2050, up to 5,500 to 6,000 km3 per year, in the agriculture sectore the increased demand of water will be 60% ion average by 2025. Considering that 70% of the fresh water available is currently used in agriculture, the possibility to phenotype precisely the ability of genotypes or new varieties is mandatory to accelarete and optimize tomato breeding programs.

Here an innovative sensor, namely bioristor, enables the in vivo phenotyping, continuously, in real time the changes occurring in the plant sap composition following the imposition of drought stress. Here the in vivo sensor was used to identify distinctive characteristics of drought resilience in different tomato genotypes (mutants) and varieties in real-time manner nondestructively.

The sensor response was used as proxy of the drought response to map a specific phenotypic profile of each variety.