

PROJECT TITLE

Utilisation of automated phenotyping platform in examination of water sensitivity in sunflower – going deep

CONSORTIUM

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SUMMARY OF THE REPORT

Within the project „Utilisation of automated phenotyping platform in examination of water sensitivity in sunflower – going deep“ we have used GROWSCREEN-Rhizo System located at the institute IBG-2: Plant Sciences, Forschungszentrum Jülich in Germany to explore mechanisms underlying drought tolerance by analysing sunflower root system. Six sunflower genotypes, of which two were wild and four cultivated accessions, that are a part of a vast sunflower collection located at the Institute of Field and Vegetable Crops, Novi Sad, Serbia (IFVCNS) were investigated.

The study conducted within this project was divided into two parts. The first was carried out in order to determine the best water stress treatment. In this experiment, one wild and two cultivated accessions were analyzed. The selected treatment was used, later on, in the second, main experiment in which we tested all sunflower genotypes. Genotypes were chosen based on phenotype variation caused by genotype by environment interaction in variable environmental conditions, particularly abiotic stress conditions of water deficiency. Root system of the majority of tested genotypes was previously phenotyped in the Growscreen-Rhizo System within COST action FA1306 under optimal growth conditions.

Conducted research within the framework of the EPPN²⁰²⁰, together with the previously preformed experiment, was the first of its kind conducted in sunflower root phenotyping by use of an automated platform.