

PROJECT TITLE

Natural variation of root growth and architecture among the parental inbreds of the barley double round robin population

CONSORTIUM

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SUMMARY OF THE REPORT

In the background of climate changing environment, plant breeding plays an important role for solving the problem of feeding the growing human world population. Root system architecture and early development are important traits for future breeding under more frequent drought stress or nutrition deficiency, but their genetic and molecular mechanism remain unclear. This project is aiming to explore the foundation of these aspects by estimating quantitative genetic variance components and characterizing the parental lines of the double round robin (DRR) barley population with respect to their phenotypic diversity for root architectural traits. Root and shoot traits of all parental lines were quantified with the help of the high-throughput phenotyping platform GrowScreen-Rhizo 3. In addition, the relationship of the quantitative traits was studied to reveal the potential connection among the traits. Among the DRR population, several parental lines show significant differences in many traits including both root and shoot traits. In this report, we present the results of shoot fresh/dry weight as an example. Measured plant traits will be used to estimate the genetic variance components for further QTL mapping and association studies combining with the genetic information of the target population.