PROJECT: RGD_Lentil_D

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PROJECT TITLE

High-throughput phenotyping for root growth dynamics under limited water availability and well-watered conditions in lentil: towards development of efficient screening methods for drought tolerance

CONSORTIUM

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SUMMARY OF THE REPORT

Lentil is an important food legume that contributes to food security and agriculture sustainability. However, lentil yield and productivity are disturbed by climate change and the frequency of drought stress periods. Breeding for drought tolerance is a pragmatic way to develop lentil cultivars adapted to drought-prone environments. Root traits are strongly associated with drought tolerance and constitute the best target to improve lentil productivity under drought conditions. Such traits are difficult to dissect in field conditions, and for this end, high-throughput phenotyping platforms could contribute to dissecting root characteristics associated with drought tolerance. Our experiment was conducted for evaluating root growth dynamics under two contrasted watering regimes (well-watered and drought-stressed regimes) using lentil Recombinant Inbreed line population and 10 Moroccan lentil varieties at the Aeroponics Facility, Universite Catholique de Louvain, Belgium

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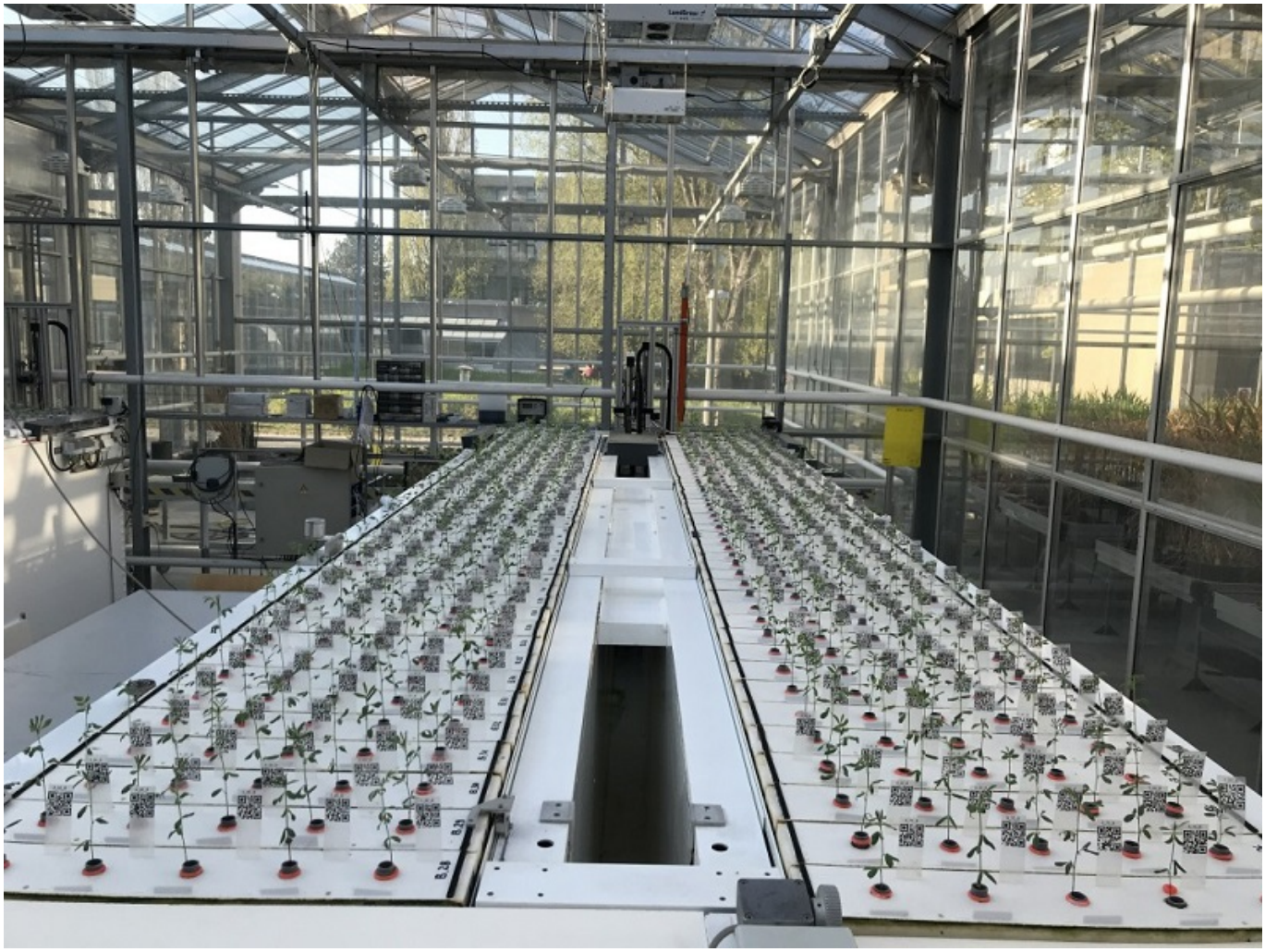

. For instance, traits such as root biomass, shoot biomass, and root-shoot ratio, have been measured and other parameters will be generated after image analysis. The data provided by high-throughput phenotyping can be integrated with genotypic data in the perspective to establish an efficient breeding protocol that could lead to identifying accessions with developed root systems that could help to develop drought-tolerant lentil varieties.