



## **APPLICATION OF PLANT PHENOTYPING METHODS IN RESEARCH AND BREEDING**

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### **INTRODUCTION:**

One of the important recent global challenges is to provide sufficient amount of food and plant derived raw materials for the growing population. This task requires new approaches in plant research and breeding. A very important development in this field has been the development and wide spread application of plant phenotyping methods during the last 15 years. The main goal of this approach is the quantitative characterization of environmental stress effect on the growth and physiological response of plants under controlled greenhouse- and field conditions, as well as the clarification of how the genetic and molecular background determines the phenotypic characteristics of plants.

### **OBJECTIVES:**

The lecture will cover the basic methods and approaches of plant phenotyping, as well as recent results from the Szeged group.

### **RESULTS:**

The presented results deal with: (i) The applicability and limitation of image based shoot phenotyping approaches to estimate grain yield in wheat. (ii) The interaction of drought and salt stress in crop plants. (iii) The development of affordable phenotyping tools, which could promote more wide spread applications of phenotyping approaches in everyday research and breeding tasks.

### **CONCLUSIONS:**

Plant phenotyping is a rapidly growing field, both in basic research in plant biology and in applied agricultural sciences, which is still under rapid development at the moment and expected to continue prospering in the coming years.