Special Issue

Remote Sensing Applications for Field-Based Plant Phenomics: Above and Below Ground Trait Assessment

Message from the Guest Editors

Our understanding of the link between phenotype and genotype is currently hampered by the crop science community's insufficient capacity to analyze the existing genetic resources for their interaction with the environment. As a result, there is significant importance in developing improved methods for rapid, high-throughput image analyses of numerous crop traits, such as growth, morphology, abiotic stress tolerance, disease, and pest resistance. Advances in phenomics, robotics, remote sensing, artificial intelligence, and computer vision are enabling mechanization of data collection, non-invasive measurement methods, and automation of image data analysis. Besides, many innovative approaches to measure above-ground (shoot) phenotyping are increasing, to study below-ground (root) growth dynamics in real-time is yet limited and challenging. Therefore, advances in developing high-throughput phenotyping methods and tools are essential for successfully characterizing above (shoot/crop) and below-ground (root) phenes to design next-generation crops as crucial components for climate-smart or eco-efficient agriculture.

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Deadline for manuscript submissions

closed (31 August 2023)

Plants

an Open Access Journal by MDPI

Impact Factor 4.1
CiteScore 7.6
Indexed in PubMed

mdpi.com/si/71175

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Plants is an open access journal which provides an advanced forum for research findings in areas related to plant function, its physiology, biology, taxonomy, stresses, and its interactions with other organisms. It publishes original research articles, reviews, reports, conference proceedings (peer reviewed full articles) and communications. In original research papers, it is important that full experimental details are provided. We also encourage timely reviews and commentaries on topics of interest to the plant research community.

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