RGB Imaging for Crop Monitoring and High-Throughput Plant Phenotyping: Smartphones, Drones and Beyond

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Message from the Guest Editors

The use of RGB color imaging can provide a wide range of crop monitoring and plant phenotyping applications, with their utility in application depending basically on the reliability of the algorithms implemented. This is one of the reasons why low-cost sensor is being included more and more as a key component in the most advanced platforms. Besides the formulation of vegetation indices, RGB images are amenable for assessing a wide range of other traits, such as counting agronomical yield components, assessing phenological stages, conducting regular monitoring of crop development, measuring the growth of individual plants, and identifying foliar symptoms associated to a myriad of biotic and abiotic stresses. In addition to the appropriate software (to run the specific algorithms), and the use of advanced statistical and modeling approaches (deep learning, machine learning, and artificial intelligence), which are all developing quickly, the other main limitation is the need for high-performance computing and applying results in real-time. Solving these points may pave the way for a wide number of applications to be implemented based on the interpretation and use of RGB images alone.

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Special Issue

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Message from the Editor-in-Chief

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