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Precision Plant Pathology: A New Approach to the Study of Epidemiology and Diagnosis of Plant Diseases

Guest Editors:

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Deadline for manuscript submissions:
closed (10 April 2024)

Message from the Guest Editors

New satellite constellations(Sentinel), cloud computing, low-cost sensors, Internet of Things, big data, and "machine learning" and artificial intelligence are expected to be fundamental in various disciplines of plant pathology and the decision making that will drive integrated pest management in the coming years. A pathosystem is represented by the "disease triangle"; that is, disease requires the interaction of a susceptible host, a virulent pathogen, and a favorable environment. In this context, "Precision plant pathology" is a set of techniques aimed at optimizing the management of diseases based on the quantification of their spatial and temporal variability. These techniques seek to reduce costs and improve production and sustainability by creating risk prediction algorithms and models for the main diseases and adapting them to specific conditions. The four following areas of research are proposed: (1) visualization and statistical analysis of disease data using R and Python; (2) disease modeling using machine learning techniques and fuzzy logic; (3) automatic plant disease diagnosis using deep learning; and (4) remote and proximal sensing for early plant disease detection.

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Message from the Editor-in-Chief

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