Special Issue

Crop Yield Estimation Based on Crop Models and Remote Sensing Data

Message from the Guest Editors

Accurate and timely crop yield estimation is critical for addressing global food security, adapting to climate change, and advancing precision agriculture. The application of remote sensing technologies has significantly enhanced spatially explicit monitoring of crop growth and yield predictions across scales, from sub-field to global assessments. By integrating crop growth models with remotely sensed variables derived from multi-platform sensors, researchers can now produce actionable yield maps to support sustainable land management and policy-decisions.

Despite progress, key challenges remain: scaling field-level models to regional/national domains with diverse soils, climates, and practices; quantifying uncertainties in data assimilation from fusion methods, model structure, and inputs; balancing machine-learning accuracy with efficiency; and the development of robust frameworks to assess yield dynamics amid increasing climate extremes like droughts and floods.

This Special Issue invites original research and comprehensive reviews that address any of the above challenges through innovative theory, methodology or real-world applications.

Guest Editors

Dr. Xin Du

Dr. Taifeng Dong

Dr. Chunhua Liao

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Agriculture
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
agriculture@mdpi.com

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Message from the Editor-in-Chief

Agriculture (ISSN 2077-0472) is an international, cross-disciplinary and scholarly journal on the science and technology of crop and animal production, and management of the natural resource base for agricultural production. We invite submissions from authors according to the aims and scope of the journal described in more detail on this page. *Agriculture* is published in an open access format – articles are published on the journal's website immediately after acceptance, giving the scientific community and the public unlimited and free access to the content.

Editor-in-Chief

Prof. Dr. Les Copeland
Sydney Institute of Agriculture, School of Life and Environmental Sciences, The University of Sydney, Sydney, NSW 2006, Australia

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