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IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing

Special Issue on
"Optical Remote Sensing of Crop Growth and Health for Smart Farming"

Crop growth monitoring plays an increasingly active role in smart farming as a rapid and non-destructive way to collect accurate information on crop health and its agronomic and physiological parameters. The deliverable crop growth information is essential to crop health diagnosis and precision management of input resources such as fertilizers, pesticides, and water. In the recent two decades, the crop monitoring community has benefited significantly from the rapid evolution of earth observation and optical remote sensing in many aspects, including the availability of data sources from various platforms, a more comprehensive spectral range resulting in a larger variety of spectral indices, advanced analytical methods, and more powerful artificial intelligence algorithms. In particular, spectral sensing (multispectral and hyperspectral) of crop growth and health status have received tremendous attention from remote sensing experts and agronomists due to its advantages of low cost, high precision, good stability, and ease of operation. This is witnessed by the widespread use of handheld, tractor-mounted or drone-based spectral sensors in farming practices all around the world. This special issue calls for submissions that report latest reviews or original research on the principles or theory, methods, applications, platforms or systems for optical remote sensing of crop growth and health status in the context of smart farming.

The broad topics of this special issue include but are not limited to:
- Characterization of crop spectral properties at leaf, grain and canopy levels
- Novel sensors or platforms and sensor calibration for crop canopy sensing
- Novel spectral indices and spectroscopic features for characterizing growth or health dynamics
- Empirical, semi-empirical and physical estimation of agronomic parameters
- Crop nutrition (N, P, K) status assessment
- Crop water status assessment
- Detection of crop phenology
- Crop grain yield and quality prediction
- Early detection of crop abiotic and biotic stress
- Deep learning for smart sensing of crop growth
- Assimilation of crop growth models with optical remotely sensed data
- Tower or IoT based continuous observations of crop growth or health
- Cloud-based agricultural monitoring systems.

Schedule
November 1, 2020   Submission system opening
April 30, 2021   Submission system closing

Format
All submissions will be peer reviewed according to the IEEE Geoscience and Remote Sensing Society guidelines. Submitted articles should not have been published or be under review elsewhere. Submit your manuscript on http://mc.manuscriptcentral.com/jstars, using the Manuscript Central interface and select the "Optical Remote Sensing of Crop Growth and Health" special issue manuscript type. Prospective authors should consult the site https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=9082768 for guidelines and information on paper submission. All submissions must be formatted using the IEEE standard format (double column, single-spaced). Please visit http://www.ieee.org/publications_standards/publications/authors/author_templates.html to download a template for transactions paper. Please note that since January 1, 2020, J-STARS has become a fully open-access journal charging a flat publication fee $1,250 per paper.

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