Sustainability

an Open Access Journal by MDPI

CiteScore: 8.9
Impact Factor: 4.1

Special Issue Reprint

Application of Remote Sensing and Machine Learning in Sustainable Agriculture

Edited by: Mihai Valentin Herbei, Ana Cornelia Badea, Aleksandar Ristić and Paul Sestras

This Reprint presents current research on the integration of remote sensing, machine learning, geographic information systems, and field-based observations for sustainable agriculture. The presented studies illustrate how satellite imagery, UAV data, environmental sensors, meteorological information, and artificial intelligence can support crop monitoring, biomass estimation, pest and disease assessment, production zone delineation, land suitability evaluation, and precision management. Particular attention is given to multi-source data integration, predictive modelling, explainable artificial intelligence, and spatial decision support. The contributions also address key challenges related to model robustness, validation under real field conditions, data interoperability, and transferability across crops and regions. Together, these studies show how digital and geospatial technologies can improve resource efficiency, reduce environmental pressure, strengthen agricultural resilience, and support more informed and sustainable management decisions.

https://www.mdpi.com/books/reprint/13667