



Remote sensing assesment for sustainable field crop management

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Abstract

Remote sensing technologies offer significant opportunities to enhance sustainable field crop cultivation by enabling precise, data-driven decision-making. Using satellite imagery, drone surveys, and spectral vegetation indices, it is possible to monitor crop growth dynamics, identify nutrient deficiencies, and detect stress caused by water shortages, pests, or diseases. Within the SENSE4CORN project, remote sensing is intended to be used to evaluate the dynamic development of maize crops in temperate climate zones. Our hypothesis is that crop growth monitoring with sensors effectively reflects yield variability both within a single field and across different cultivation practices. Furthermore, the collected data correlate well with field observations, allowing the timely detection of specific nutrient deficiencies. This would demonstrate the potential for sustainable crop management, as remote sensing supports the development of site-specific fertilization strategies and provides insights into yield potential while reducing negative environmental impacts.

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