International Conference on

AGRICULTURE & HORTICULTURE

&

International Conference On

PLANT AND SOIL SCIENCES

December 05-06, 2018
Osaka, Japan

Vaclav Nedbal

University of South Bohemia, Czech Republic

Analysis of nitrogen nutrient status of winter wheat using aerial hyperspectral data

Knowledge of spatial distribution of nitrogen nutrient status of crops is very important for planning of its fertilization, mostly in system of precision agriculture. Aerial hyperspectral sensors can provide very detail information about spectral characteristics of crop which can be used for spatial analysis of nutrient status and physiological condition of crops. Spectral indices derived from spectral data are usually used for estimation of nutrient status. We analyzed relation between 16 spectral indices derived from hyperspectral data and field assessment of nutrient content in winter wheat biomass using Nitrogen Nutrient Index (NNI). The best result provided index REIP (Red Edge Inflection Point Index) with $R^2 = 0.66$, however the correlation between REIP and NNI varies spatially and during the vegetation season. Important factor which might have essential impact on the correlation between spectral indices and nitrogen content in crop mass is spatial proportion of both crop and soil cover recorded by spectral sensor. This finding is important mostly on fields with high variability of soil environment and canopy cover. This work was supported by grant of Technological Agency of the Czech Republic TA CR Epsilon TH02030133.

Biography

Vaclav Nedbal has completed his PhD from University of South Bohemia in Ceske Budejovice, Czech Republic. He is the researcher at University of South Bohemia, Faculty of Agriculture and closely collaborates with ENKI non-profit scientific organization, Trebon, Czech Republic. He has published 15 contributions in reputed journals and book chapters.

oscar76@seznam.cz

Notes: