

Near Infrared Reflectance Spectroscopy to predict the legume content in legume-grass mixtures as a key parameter in N₂-fixation – method development, validation and application

Felix Locher

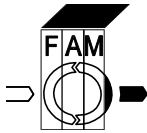
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Veränderungen in Agrarökosystemen und deren Umwelt

Felix Locher

**Near Infrared Reflectance Spectroscopy to predict
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Abbreviations

ANOVA: Analysis of Variance

BNF: Biological Nitrogen Fixation

DM: Dry Matter

FT-NIRS: Fourier Transform Near Infrared Reflectance Spectrometer

IDW: Inverse Distance Weighing

Leg [%]: Percentage of Legumes in the Mixture on a Dry Matter Basis

MD: standardized Mahalanobis Distance

N_{leg} : Dry matter N-content of the legume fraction [%]

N_{dfa} : Nitrogen derived from Atmosphere [%] of the N-content of the legume fraction

N_{fixed} : Amount of N_2 fixed by Legumes [$kg\ N*ha^{-1}$]

NIRS: Near Infrared Reflectance Spectroscopy

N_t : total soil nitrogen content [%]

PLSR: Partial Least Square Regression

RMSEC: Root Mean Square Error of Calibration

RMSECV: Root Mean Square Error of Cross Validation

RMSEP: Root Mean Square Error of Prediction

RPD: Ratio of the Standard Error of Prediction to the Standard Deviation of the Reference Values

$SEP_{BIAScor}$: Standard Error of Prediction after BIAS correction