Lignin Determination by Near Infrared Reflectance Spectroscopy. (C06-vendrell132942-Poster)

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Abstract:

Lignin is inversely related to the digestibility of forages and forage quality predictions could be improved by incorporating lignin into the digestibility equations. Lignin can also interfere with the availability of protein and hemicelluloses. Near Infrared Reflectance (NIR) is reliably used to determine neutral detergent fiber and acid detergent fiber in forages and lignin in wood products. However, lignin is not commonly included when forages are analyzed by NIR, which is likely due to the unsatisfactory prediction accuracy of the calibrations. Acid detergent lignin was determined using a filter-bag extraction methodology on 81 forages consisting of alfalfa, bahia, bermuda, fescue, millet, peanut, and small grain hays with values ranging from 1.6 to 8.1%. Near Infrared Reflectance spectra were calibrated with these values (R2 =0.74). Broadening the range of lignin values were expected to improve the calibration and when the high range of lignin was increased to 16.1% by adding cotton leaves and stems, the calibration was significantly improved (R2=0.89). Further improvements are anticipated when higher lignin forages are added to the calibration.

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