

# The usefulness of infrared spectroscopy for the assessment of soil textural class and classification

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Soils are highly variable both spatially and with depth, and management approaches have to deal with this variability, resulting in responses at a local scale. Rapid and cost-effective analytical techniques, alternative to traditional laboratory methods, are needed to deal with the variability and volume of data needed to support soil management. This study assessed the suitability of diffuse reflectance infrared Fourier transform spectroscopy (DRIFTS) as such an alternative. In particular, we evaluated the potential of the DRIFT technique to predict textural class and soil classification from spectra, and how this data could be useful for soil management. For the assessment, a number of cropping soils from different depths representing a range of soil orders were scanned with a infrared spectrometer, and multivariate analysis models developed from the spectra and reference soil particle size, texture class and classification reference data. The results confirmed that the DRIFT technique can be successfully used for the assessment of soil texture class. In addition, the technique was proved to be useful for the rapid assessment of soil classification. These applications of the infrared technique represent an opportunity for improving soil management with regard to the management and identification of subsoil constraints, and thus more efficient paddock management.