



## **Study of the near infrared spectroscopy performances for the determination of soil parameters useful for the fertility diagnosis.**

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A fertility diagnosis, as close as possible to *field truth*, needs the knowledge of the cation exchange capacity (CEC) or, at least, the clay content of the composite samples. But, in the Walloon region (Belgium), these parameters are rarely analysed in routine and therefore, are appreciated on the field or estimated by regional average.

To overcome this gap, we investigated the use of near infrared spectroscopy (NIR) for the determination of four parameters: CEC, total organic carbon nitrogen content and clay content.

1 600 samples representative of the Walloon region diversity were analysed. The CEC, clay, nitrogen and total organic carbon contents, on air-dried samples, sieved in 2mm, were measured by reference methods (Metson, chain Hydrometer, Kjeldhal, Springler-Klee method) and by NIR.

The local calibration, combined with morphopedologic stratifications, show very encouraging results. The accuracy of the predictions is sufficient for use within the framework of fertility evaluation.

Indeed, NIR appears as a really easy method which would allow analysis without extra cost to the farmer or the laboratory providing the diagnosis and advice.