



## **The influence of sunlight variations on field spectrometry and compensation strategies**

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Collecting spectral data of plants and soil has gained more and more importance in precision farming. Such data provide information about nitrogen demand, degree of ripeness, moisture content and many other important parameters.

In this connection, in-situ measurements have some advantages over laboratory measurements. An intervention in the most sensitive ecosystems, for example, is not necessary as the measurements are performed in a contact-free and non-destructive fashion. In spite of these advantages, there are also obstacles, which cannot be neglected. As the sunlight is used as the light source for generating the diffuse reflection of the measurement samples, it was difficult in the past to receive stable results over a long time period. The sunlight irradiance varies a lot over a day, not only because of sun position changes but also because of atmospheric changes. This made it obligatory to take a white reference measurement prior to each sample measurement, which was quite time-consuming. And even then, a long integration time could lead to inaccuracies in the spectral information.

In the poster, the tremendous influence of sunlight variations on field spectrometry is shown and compensation strategies are presented. The emphasis is on a permanent referencing of the sunlight.