SPECTRAL EVOLUTION

Measuring phosphorus in vegetation

Phosphorus is a critical ingredient for plant/crop health. Fertilization management is becoming more important to precision agriculture. Measuring phosphorus deficiency in plants can provide an accurate picture for adjusting fertilization administration for maximum yields. Traditional methods for estimating the available phosphorus for growing crops include soil sampling or in-season plant sampling which are costly and labor intensive. Measuring phosphorus with a field spectroradiometer is faster, easier, more cost-effective and non-destructive.

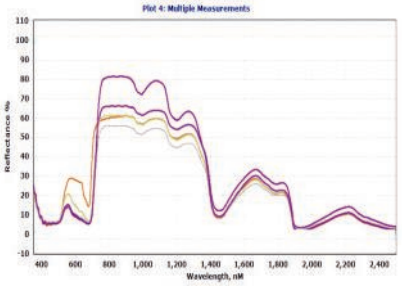
Plants that exhibit phosphorus deficiency show purple discoloration in the leaf margins due to increased anthocyanin production. Prediction of plant phosphorus is possible by noting increased reflectance at 440 and 445nm a result of increased anthocyanin which absorbs in the green region of the VIS and reflects in the blue or red region of the spectrum. Additional wavelength features to identify phosphorus occur in the NIR at 730 and 930nm.

The PSR+ field spectroradiometer is lightweight, rugged and reliable and runs on lithium ion batteries for a full day in the field. Spectra can be collected with a direct attached lens or handheld pistol grip with FOV lens. For single leaf measurements our unique leaf clip utilizes a light source that is rail mounted to the instrument to keep the heat away from damaging your samples. This allows researchers to measure the exact same leaf all season long. The leaf clip with its built-in white reference and trigger makes single handed measurements very easy. The PSR+ can also be ordered with our six inch Integration Sphere for leaf and needle measurements.

The PSR+ delivers the highest resolution and sensitivity available in a field spectroradiometer across the full 350—2500nm spectral range. In addition to phosphorus, the PSR+ can identify total nitrogen and potassium—all from a single sample and its spectra.

The PSR+ runs under our DARWin SP Data Acquisition software with immediate access to 19 vegetation indices. All data is saved as ASCII files for use with other analysis software such as R2,chemometrics, and statistical analysis programs. It is also available with the EZ-ID sample identification software. EZ-ID compares a target sample against a library of known samples. In addition, EZ-ID has a Custom Library Builder module that allows you to build your own crop library for use in the field.

The PSR+ with our unique leaf clipwith a built-in white reference and a separate tungsten halogen illumination source tp keep heat away from the sample during measurement.



Multiple scans in a single plot using DARWin SP Data Acquisition software.

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