SPECTRAL EVOLUTION

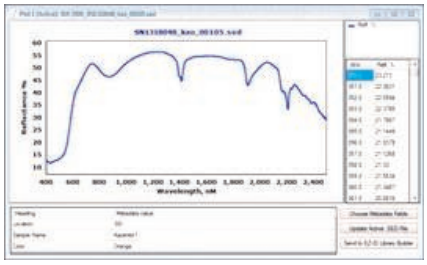
Using a Field Spectrometer for Seed Discrimination

In plant breeding, NIR spectroscopy can be used for qualitative analysis of seed and discrimination of seed mutations in chemically or irradiated seeds to find variants with a desired improved trait by comparing seed spectra. Seeds are classified by the similarity of their spectroscopic fingerprints. Outliers with the improved variant can be separated from large populations of similar seeds based on variations in absorption features.

Discriminate between different seed characteristics with a PSR+.

The PSR+ field spectroradiometer provides a high resolution/low noise system for fast and accurate *in situ* scanning of seed and plant samples. The PSR+ covers the full spectral range from 350-2500nm. Available accessories include a benchtop probe with sample compactor, contact probe with light source and a leaf clip for plant measurements.

The PSR+ is available with our EZ-ID sample identification software and its built-in Library Builder module. The Library Builder allows you to scan a known sample and include the scan and all relevant metadata (operator, location, sample name, etc.) in the library for use in matching against unknown samples. For seed identification, you could build a library of known seed spectra and identify against that library to screen for variants with desired improved traits.



Library Builder module allows you to build your own library from known samples and compare against target samples.

The PSR+ features:

- 350-2500nm spectral range
- High resolution in a field spectroradiometer:
- 3nm @ 700nm
- 8nm @ 1500nm
- 6nm @ 2100nm
- Improved cooling and rugged construction with an anodized aluminum unibody chassis and heat dispersion channels
- Best-in-class sensitivity (signal-to-noise ratio)
- No moving parts for reliable field use
- Auto-shutter, auto-exposure, auto-dark correction for one-touch operation
- Direct attach 4,8,14 degree lenses, 25 degree fiber optic, diffuser or integrating sphere
- Fiber mount: 1,2,3,4,5,8 and 10 degree lenses
- LCD display and integral storage for 1000 scans
- Wide range of accessories including contact probe, pistol grip, leaf clip, benchtop probe with sample compactor
- Optional GETAC PDA with digital camera, GPS, voice notes—all data saved with your scan

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