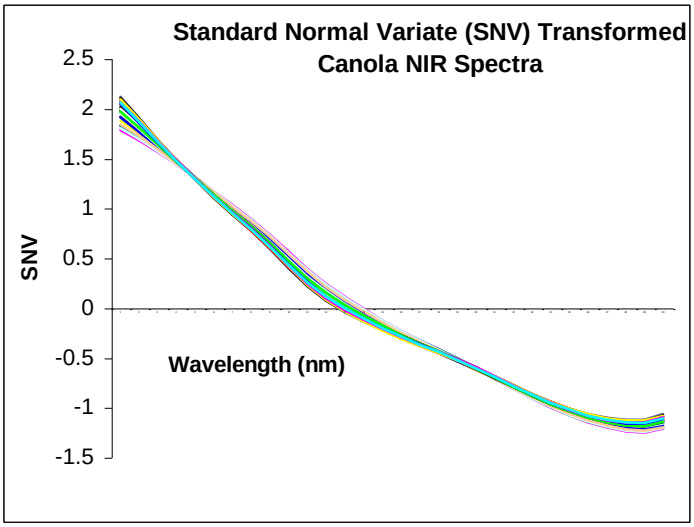
Appl Note: 103. Cropscan 2000B Canola Calibration

Introduction

The Cropscan 2000B Whole Grain Analyser has been used for the development of a calibration capable of predicting the oil and moisture content of canola, a valuable oilseed grown in many regions of Australia. This requires the use of a 7mm pathlength cell, which allows for consistent sample packing and keeps sample absorbance values in the required 2-4 range.

Description

50 samples of canola seed, grown in the southern regions of Australia were analysed for oil and moisture on a Bruker Minispec NMR analyser. The samples were then scanned on the Cropscan 2000B between 720-1100nm using a 7mm pathlength cell developed by NIR Technology Australia. A Standard Normal Variate (SNV) transformation was applied to the collected spectral data and then a Partial Least Squares (PLS-1) regression was performed to develop a calibration model. The results of this calibration are shown in table 1.



Results

The regression statistics for the calibration are given in table 1

	Number of Elements	Range (%)	Number of Principal Components	Correlation	Standard Error of Validation (SEV) (%)
Oil	50	30-50	8	0.974	0.56
Moisture	50	4.5-9.0	5	0.935	0.22

Table 1: Regression statistics for the canola calibration.

The results are shown graphically in figures 1 and 2.

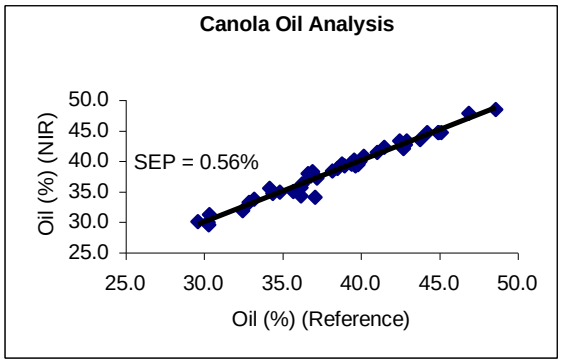


Figure 1. Canola oil Prediction Prediction

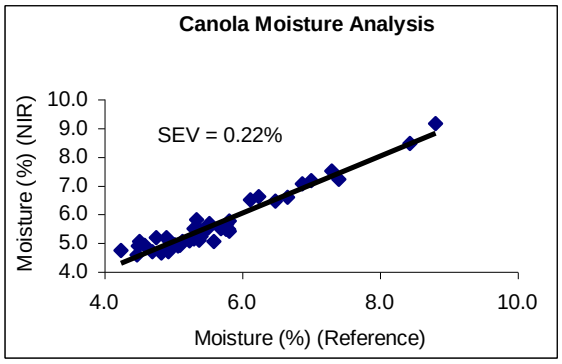


Figure 2. Canola moisture

Conclusion

The above results show that the Cropscan 2000B can be calibrated to measure the oil and moisture content of canola seed. Further investigations are being made into the influence of varietal and environmental conditions.

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