The Cropscan 2000G On Farm Analyser is portable Near Infrared Transmission Analyser designed for use by farms to measure protein, oil and moisture in whole grains of wheat, barley, oats, sorghum, rice, canola, corn, soybeans, peas and beans. The instrument use a diode array spectrometer to collect the NIR spectrum from 720-1100nm. In this region, N-H(Protein), C-H (Fat) and O-H(Moisture) absorb NIR energy. The NIR spectrum of grains can be analysed to provide rapid analyses of whole grains for protein, oil and moisture in less than 1 minute.

Application Note 04: :
Cropscan 2000G Wheat Prediction

NIR Technology Systems

Introduction

The Cropscan 2000G Whole Grain Analyser is provided with calibrations designed to simultaneously measure protein and moisture content of the major classes of wheat grown in Australia. An evaluation of the predictive ability of these calibrations is presented here including statistical analyses. NIR spectra of the different wheat classes are shown in the diagram below.

Description

26 Australian wheat samples were analysed in the laboratory for protein (Leco) and moisture (Oven) content. These samples were scanned on the Cropscan 2000G between 720-1100nm in a 20mm pathlength cell using the wheat calibration provided in the instrument. Five individual scans were recorded for each sample and the average was taken as the predicted protein and moisture values.

Results

A graphical representation of the prediction results are shown in figures 2 and 3. The following table shows the comparison of the results of the Cropscan 2000G against the laboratory data.

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Conclusion:

The above data shows that the Cropscan 2000G can be used to measure the protein and moisture content of wheat samples to within standards specified by the Australian Wheat Board. The Absolute Average Deviation (AAD) specification for wheat are 0.33% for protein and 0.38% for wheat. The Cropscan 2000G predicts these properties well within these limits (0.22% for protein and 0.17% for moisture).

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