4B-119: *AusScan NIR Grain Standards Development and User Calibration Upgrade*

Project Leader: Peter Flinn

Aims and Objectives:

To develop a new set of sealed whole grain "standards" for standardising a network of near infrared (NIR) spectrometers, and to generate "repeatability" files based on grain samples scanned on different instruments and at different temperatures, in order to improve robustness and stability of the AusScan grain quality calibrations, resulting in improved repeatability among instruments.

Key Findings

A new and representative set of 18 sealed standards was created, and all were scanned on 16 NIR instruments around Australia, with new standardisation files generated for 15 "host" instruments to match the selected "master". The standards will also be available for future standardisation work. Two repeatability files, based on instruments and temperature differences, were successfully incorporated into the grain calibrations, without compromising calibration accuracy and with repeatability values small in relation to calibration error. The calibrations were updated to reflect the new master instrument.

Due to imminent changes in commercial arrangements for AusScan, it was not possible to test and validate the calibration updates across the network through a new ring test.

It is recommended that this be done as soon as possible in order to properly evaluate the performance of the network**.**

Application to Industry

The outcomes of this project will lead to the AusScan calibrations becoming more stable and robust, through the re-standardisation process which was possible with the production of new whole grain standards, and the use of a repeatability file (or files).

This will result in improved uniformity of analysis across the NIR instruments in the network, and hence improve confidence in the accuracy of the calibrations by licensees in both the research and industry sectors, and hopefully attract further participants to utilise the rapid and efficient NIR technique for assessing feed grain quality for the livestock industries.