4B –118: *Canola Meal NIR Calibration Implementation*

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Background

Previous project work has looked at the effects of heat processing on canola meal quality. Total and reactive lysine NIR calibrations have been developed for predicting variation in meal quality. The previous calibration statistical data identified the need for further samples to be analysed to improve the calibrations.

Methodology

A total of 53 Canola meal samples were collected from eleven oilseed crushing plants. Additional purposely heat damaged samples were produced through autoclaving. Samples were analysed for total and reactive lysine, as well as wet chemistry parameters. The additional canola meal sample results were added to the NIR calibrations previously developed. New calibrations were developed using a FOSS 6500 NIR spectrophotometer.

Key Findings/Conclusions

Total lysine content ranged from 15.4 to 20.9 g/kg. Reactive lysine content ranged from 14.0 to 19.9 g/kg and was more variable than total lysine.

Crude fat levels ranged from 8.4% to 16.8% in expeller extracted meals and from 0.4% to 3.4% in solvent extracted meals.

The inclusion of more samples, as well as heat damaged autoclaved samples, has provided a greater spread of samples, with improved NIR calibration statistics. The RPD value for both total and reactive lysine has increased. The new calibrations have greater ability to distinguish between low, medium and high results. Wet chemistry data provides further information for industry's use.

Potential Users of Information (including value assessment)

This project work has increased the number of samples the canola meal total and reactive lysine NIR calibration equations are based on. This has provided an improvement in the calibrations statistics and the ability to predict meal quality.

The project has provided more robust NIR calibrations for prediction of total and reactive lysine content. The variability between commercial crushing plant samples identifies the value in utilising NIR calibrations in providing rapid and lower cost meal quality assessment.

It is recommended that the revised calibration equations be released for use by the oilseed, livestock and feed industries.