

4B-110: Further development of a reactive lysine NIR calibration for soybean meal

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Aims and Objectives

To improve prediction accuracy of soybean meal reactive lysine NIR calibration.

Key Findings

- In the current study we included 68 soybean meal samples and 25 soy protein concentrate samples into an updated calibration (Total of 309 samples used in the calibration).
- The updated calibration provides the prediction of total and reactive lysine with the standard error of cross validations of ± 1.02 g/kg and ± 0.96 g/kg (as is basis), respectively, with R^2 of 0.94 and 0.95.
- These values mean that the total and reactive lysine contents of unknown soybean samples should be predicted with 95% confidence to be within 2.04 and 1.92 g/kg of the actual value.
- The RPD values for total and reactive lysine calibrations were improved from 1.59 and 2.32 to 3.35 and 3.94, respectively and the new NIR calibration offers a robust prediction for bioavailable lysine content in soybean meal and soy protein concentrate.
- In addition, the new calibration has the ability to predict apparent, standardized and true ileal digestible total and reactive lysine contents in soybean meal and soy protein concentrate with similar accuracy.
- The calibration can also be used for soy protein concentrate.

Application to Industry

This calibration can be applied in commercial feed mills, nutrition labs and SBM trading companies to accurately evaluate the quality of SBM. Furthermore, use of predicted standardized reactive lysine content for diet formulation will improve nitrogen utilisation efficiency by the Australian Pork industry. In addition, use of this technology in the Australian pig industry will reduce nitrogen excretion into the environment.