

# Application Note 12: Cropscan 2000B – Applications in the Flour Milling Industry.

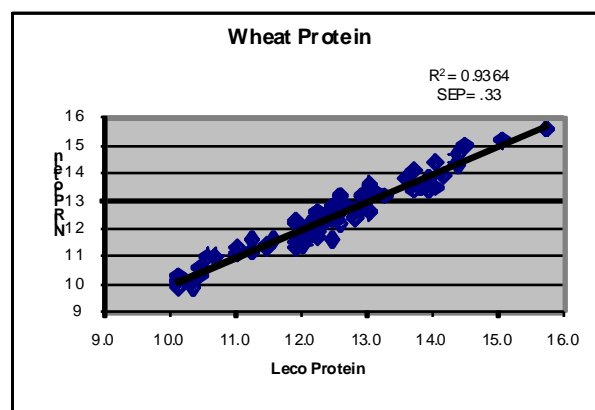
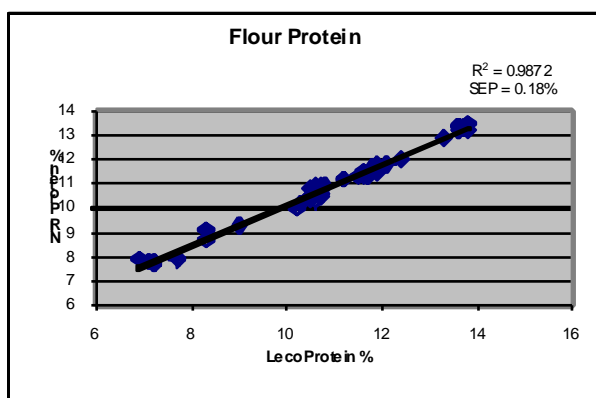


## Introduction

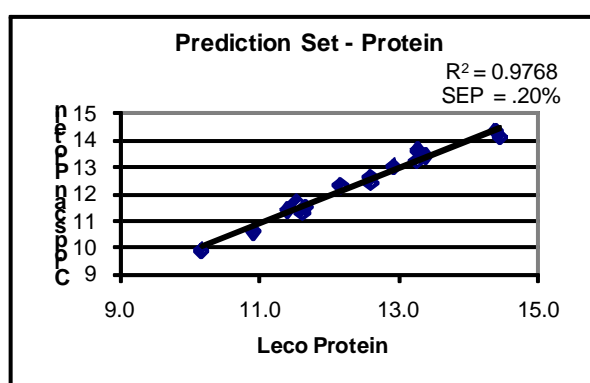
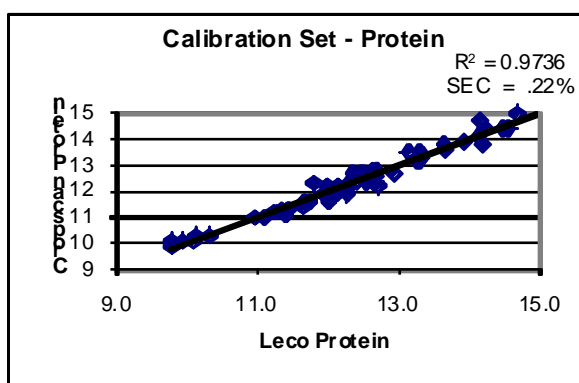
Within a flour mill, protein and moisture are critical parameters. NIR analysers are used extensively for measuring incoming wheat, in process materials and the finished flour. Typically NIR reflectance based instruments have been used in the flour milling industry rather than whole grain instruments. This is because the whole grain analysers could not measure flour. The Cropscan 2000B is a Near Infrared Transmission analyser which is suitable for measuring whole grains and seeds as well as powdered materials. This application note provides a comparison between the Cropscan 2000B and the Leco Nitrogen Analyser for both flour and whole wheat.

## Description

43 samples of flour and 73 samples of wheat were analysed on the Cropscan 2000B using calibrations which have been developed over several years. The Cropscan 2000B uses a Sample Transport Module to move a sample cell down and up thereby collecting 5 sample scans from 720-1100nm. The 5 scans are averaged and the results are displayed on the LCD panel within 1 minute. The data collected from the Cropscan 2000B was compared with results for protein determined by a Leco Dumas Nitrogen Analyser. The two plots below compare the protein analysis between the Cropscan 2000B and the Leco Analyser.



An optimised calibration was developed for the wheat using 53 of the samples and predicting the other 20. The plots below show the agreement between the Cropscan 2000B and the Leco Nitrogen Analyser.



## Conclusion

Although this study did not look at moisture of wheat or flour, the Cropscan 2000B measures moisture with an accuracy of approximately 0.25% as compared with oven drying. This study shows that the Cropscan provides a means of measuring protein in whole wheat and flour. The speed of whole grain analysis offers millers the ability to measure incoming or stored wheat without the need to grind the sample, as well as finished flour or materials in process.