

Technical Note 37: Protein Constant Moisture Correction



Introduction:

Several grains are traded based on protein that is expressed at a constant moisture (CM) level. For example, wheat is sold at 11% moisture corrected protein and barley is sold at 0% or dry basis in Australia. In other countries the moisture values differ.

This note is intended to explain how the CropScan 1000G, 1000G and 2000B can be setup to display Protein at specific moisture levels.

Description:

Below is a table that shows the affect of expressing Protein% on an ASIS and CM basis.

Sample No	Protein CM = 0, %	Protein ASIS, %	Moisture, %
1	12.35	11.12	10
2	13.43	12.09	10
3	12.44	10.78	13.4
4	12.66	10.99	13.2
5	12.29	11.09	9.8
6	10.43	9.39	10

The conversion equation is:

$$\begin{aligned}\text{Protein CM} &= \text{Protein ASIS} * (100 - \text{CM Value}) / (100 - \text{Moisture}) \\ &= 11.12 * (100 - 0) / (100 - 10) \\ &= 11.12 * 1.11 \\ &= 12.35\%\end{aligned}$$

In the calibration files, ie, .bin files, there is an option to calculate the Protein CM and to specify the CM value. You can open a .bin file in NTAS, Scan and Display, Edit Calibration. Select Parameters as shown below.

To setup up Protein CM, click on the tick box and then enter the CM value. In Australia, wheat is set to 11% and barley set to 0%.

You must press Convert to save changes.

Create Calibration File

Edit Existing Import Calibration Delete a Calibration

Filenames Parameters Options Information Summary

Enter the calibration parameters. The number of constituents will be compared to the number of files found in the specified directory. The number of scans is the number of scans to average and the cell type is the type of cell the instrument is required to detect.

Number of Constituents: 3

Number of Scans: 15

Cell Type: 20mm Cell

Constituent Correction: 0

Convert Download Cancel

To setup the CropScan 1000B and 2000B to display Protein CM, follow the instructions below.

- 1) Press Alpha Function key. Select 4) Systems.
- 2) Enter the Password, "S" and Save.
- 3) Select 1) Mode Configuration.

A list of parameters will be displayed. Press the Enter button until you reach the ProtCM = 0, type in 1 and press Enter until you get back to the previous screen.

The CropScan 1000G is setup to only display Protein CM as long as the option has been selected in the calibration file. You cannot switch between Protein ASIS and Protein CM on the CropScan 1000G.