

Procedure for Standardisation of a PerkinElmer Perten IM9500.

Introduction: What is Standardisation and why do we do it?

Standardisation of all instruments which are Full Members of the UK Grain Testing Network is a vital part of maintaining the network. Without it, individual instruments will drift away from the rest of the population and over time this will result in inaccurate results across the industry.

Prior to each harvest a set of standardisation samples is sent out to all full members of the network. Everyone receives an identical set of samples and is asked to scan them at the same time, this is to minimize any differences in scans due to sample ageing. We strongly recommend that scans are carried out after your annual NIR service rather than before as servicing may introduce biases which standardisation should correct.

The scans are used to adjust every instrument in the network to read as closely as possible to the sub-master instruments at Sciantec and Sharnbrook Grain. At the same time, the sub-master results are compared with the reference analyses and the committee and PerkinElmer together decide on whether any changes to calibrations are required to ensure the best agreement between reference and NIR results.

If PerkinElmer do not receive standardisation scans from you then your instrument cannot be adjusted to bring it into line with the sub-master, it cannot have any new calibration biases applied to it to keep it in agreement with the reference and it will result in your company being listed as not up to date on the back of the monthly ring check reports. With this in mind it is in your interest to ensure that you do everything you can to make sure that the scan collection exercise is carried out effectively on your instrument.

To make sure your instrument is up to date with the latest calibrations and adjustments please keep it connected to the Internet when in use and especially between May and October.

Scanning samples

Each year at standardisation time (May) you will be sent a set of standardisation samples and an email containing details of when these should be scanned and the sample IDs you should use. This email will also tell you the date at which scan upload will occur. It is vital to use the network profiles and exact naming of the sample ID's, otherwise the scans might not be accepted.

Arrange the samples in numerical order starting with Barley, then Wheat, Rapeseed, Oats and Beans. You should have a set of samples for each commodity for which you have signed up with the network. If there are any missing or damaged contact Sciantec immediately so that we can send replacements in time to meet the upload deadline.

Carry out the scan collection as follows:

1. Ensure that the instrument is connected to internet to enable upload of data.
2. The instrument will automatically save the Analyses & Scan Data.
3. Select the 'Winter Barley' product – For ALL the Barley Samples
4. Select 'Wheat' for the Wheat Samples
5. Select 'Rapeseed' for the Rape samples.
6. Select 'Oat' for the Oat samples.
7. Select 'Bean' for the Bean samples.
8. To complete the analysis, Fill the hopper with Product. Click 'Analyse'. Enter the Sample ID exactly as detailed on the sample package - Do not add any prefix or suffix. Click 'Continue'.
9. After the predictions have been displayed remove the drawer, and empty the sample back into its packaging.
10. Select the next numbered sample.
11. Repeat stages 8 to 10 until each sample in the Product set has been scanned once. **Then start again. Each sample should be scanned twice using the Sample ID as detailed on the sample package both times. The repeat scans must be carried out on the same day.**
12. Once all of the Samples for one Product have been run, return to step 2 and select the next Product.
13. Repeat the sequence for all the other Products
14. Once completed, ensure that all of the sample bags are properly sealed and store in a cool dark place **as the samples will be needed again.**

Uploading Scans

When all the samples have been run the scans are automatically uploaded to the PerkinElmer NetPlus Cloud Server. As recommended, the instrument should always be connected to the internet to allow this upload, please check that the LAN line is working properly.

If you have any problems with standardization please contact Calibre, Tel: 01925 860401.

Follow Up: What happens next?

Once the agreed scan upload date has passed, PerkinElmer provide a list to Calibre / Grain Network of all instruments which have not uploaded. Attempts are then made to contact users of these instruments to find out why and encourage them to do whatever is required to get the scans to PerkinElmer.

The scans are then processed by PerkinElmer at their Applications Centre in Sweden. At this point they may ask that some samples be scanned again if the scans seem unusual. The main reasons for this are usually running the samples in the wrong order, giving them the wrong file names or missing out individual samples or whole commodities. Again we will attempt to contact users to ask for rescans, these need to be carried out quickly if the data is to be used.

Once the data is processed each instrument can be biased to match the results from the sub-masters and any calibration biases added. New calibrations are produced approximately 4 weeks after scan upload.

Calibration Download

You will receive an email in advance of calibration download. You will then receive new calibrations overnight.

Current calibrations are listed here <https://www.perkinelmer.com/ukgtn>

Once again, PerkinElmer / Calibre provide a list to the Grain Network of all instruments which have not picked new calibrations up and we contact users to try and help remedy this.

Following calibration download all instruments should read within tolerance of the sub-master instrument. Performance of this instrument is monitored throughout harvest using new crop samples and if further bias corrections are required the calibration download procedure is repeated.

To ensure no gross errors have been introduced during standardisation and calibration download we run a 'quick check' in place of a June Ring check round to compare results before and after standardisation on the April / May ring check samples.