

INSTALAB® 700 WHOLE GRAIN WHEAT ANALYSIS (HRWW)



INTRODUCTION

The Instalab® 700 (IL700) is a self-contained optical reflectance instrument, designed to quickly and accurately measure the percent of constituent concentration (moisture, protein, oil, starch, fiber, ash, etc.) in a wide range of commodities common to the grain, feed, and food industries.

The IL700, a non-NTEP grain analyzer, has the capability of detecting protein and moisture in whole grain wheat versus the typical process of grinding and preparing the sample.

CONSIDERATIONS

- A sample cup designed for whole grain sample averaging is an optional accessory to the IL700 to analyze whole grain wheat. Sample uniformity and presentation is very important in providing a consistent sample to the detector to obtain the highest level of accuracy.
- A calibration for analyzing whole grain HRWW is available through DICKEY-john Corporation that should meet the majority of application requirements. Other wheat calibration varieties can be developed on request.

LARGE SAMPLE CUP INSTALLATION

The instrument must be adjusted to accommodate the large open sample cup. To use the large sample cup, the standard sample tray must be removed and replaced with a larger sample tray.

Large open sample cup 4" part number 46811-1410

Large open sample tray 4" part number 46811-1211

To install the large sample cup and tray:

1. Open the drawer and remove the Allen head screws (3) from the standard tray using a 5/64 Allen driver. Set aside the screws to re-attach the large tray.
2. Remove the sample tray from the plate.

Figure 1

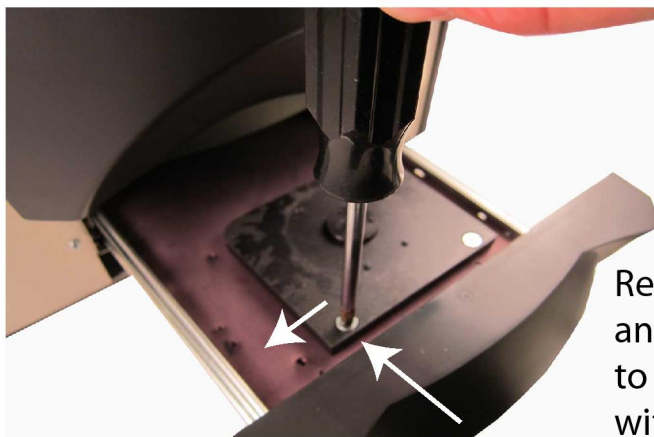
Remove Standard Sample Tray



3. Remove the #2 Phillips screws (2) from the sample motor mounting plate.
4. Move the sample motor plate approximately 1" to the left and align the motor plate screw hole with the outermost mounting plate hole.

Figure 2

Remove Screws and Re-Align



Remove screws
and move plate
to the left. Align
with outermost hole.

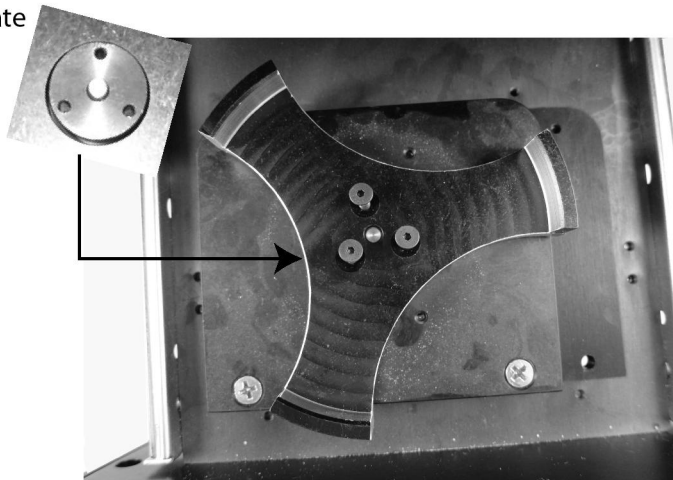
5. Re-insert the Phillips screws (2) through the mounting plate and secure to the drawer tightening to 6 in. lbs.

6. Place the large sample tray onto the sample motor plate aligning the Allen screw holes (3) to the plate holes.
7. Secure the plate with the Allen head screws (3). Tighten to 6 in. lbs.

Figure 3

Install Sample Tray

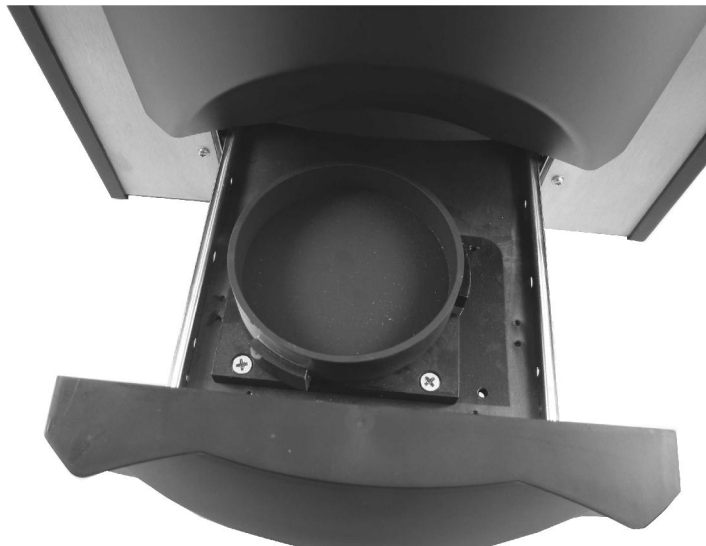
Attach tray to
sample motor
plate



8. Place sample cup into tray. Installation is complete.

Figure 4

Sample Cup Placement



WHOLE WHEAT ANALYZING

The four inch open face sample cup along with the sample cup receptacle is used.

1. Overfill the sample cup with grain heaped in the cup.
2. Strike off the sample using a wood stick (test weight striker) or similar leveling tool.
3. Use zig zag movements to level grain with the side walls.

Figure 5

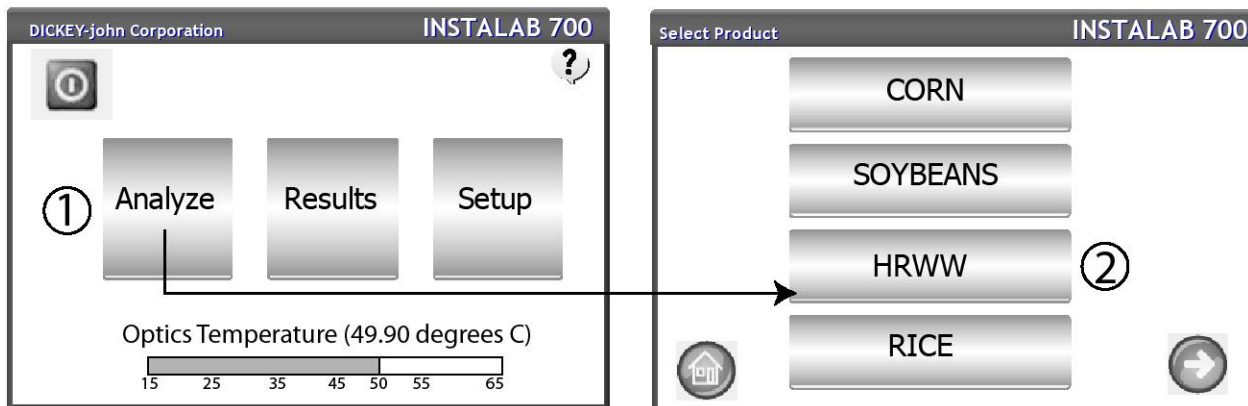
Level Grain



1. At the Main Menu screen, press the **Analyze** button. A pre-defined list of the 4 most recent products tested appear on the Select Product screen. Press the **Next** button if other available grains, if necessary.
2. Select the desired product.

Figure 6

Select Product

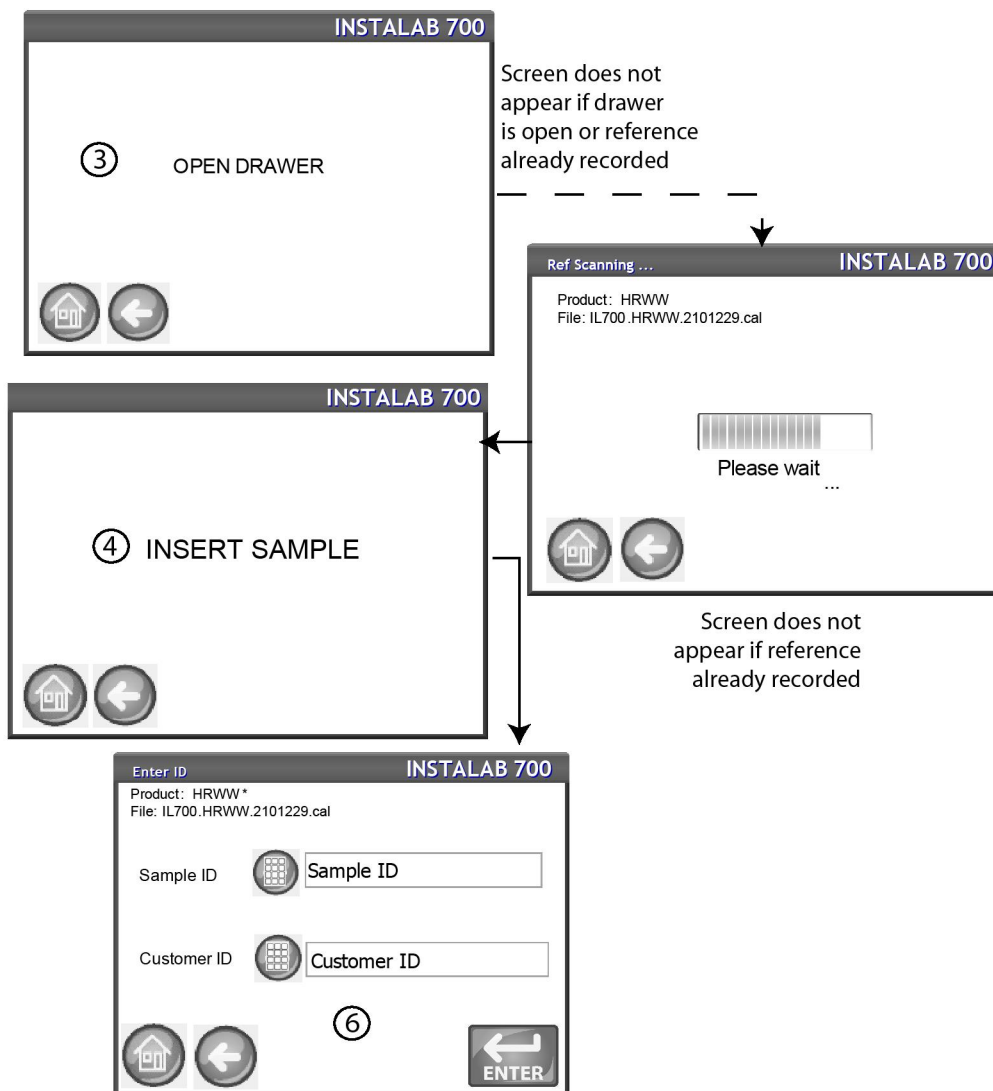


3. A screen may prompt to open the drawer to prepare for analysis if the door is not already open or if a recent reference has not been recorded.
4. Open drawer to complete open position and insert sample. A reference scan will not start if drawer is not in the complete open position.
 - A status bar indicates progress if a scanning reference is required.

5. Close drawer at screen prompt to begin analysis.
6. The Enter ID screen appears only if a sample ID and/or a customer ID is required. Press the **Enter** button to proceed.
 - When enabled, Auto Sequencing will automatically enter the next sample ID number.
 - When enabled, Last Enabled Customer ID will continue loading a Customer ID until the next power cycle occurs.
 - If neither are required, this screen is skipped.

Figure 7

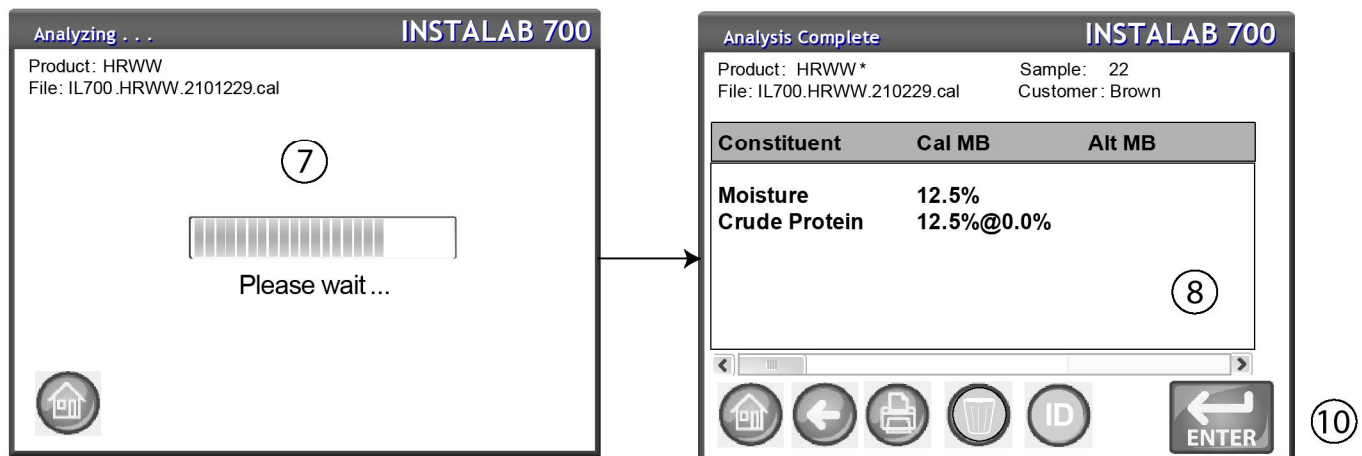
Analyzing



7. During analysis, a testing status bar indicates progress.
8. The Analysis Results screen displays:
 - Product tested
 - Sample ID, if enabled
 - File name
 - Customer ID, if enabled
 - Constituent results (An alternate moisture basis reading displays when required by the calibration)
9. Test results are automatically saved to the unit unless the **Clear** button is pressed.
10. Press the **Enter** button to analyze another sample or open the drawer.

Figure 8

Results



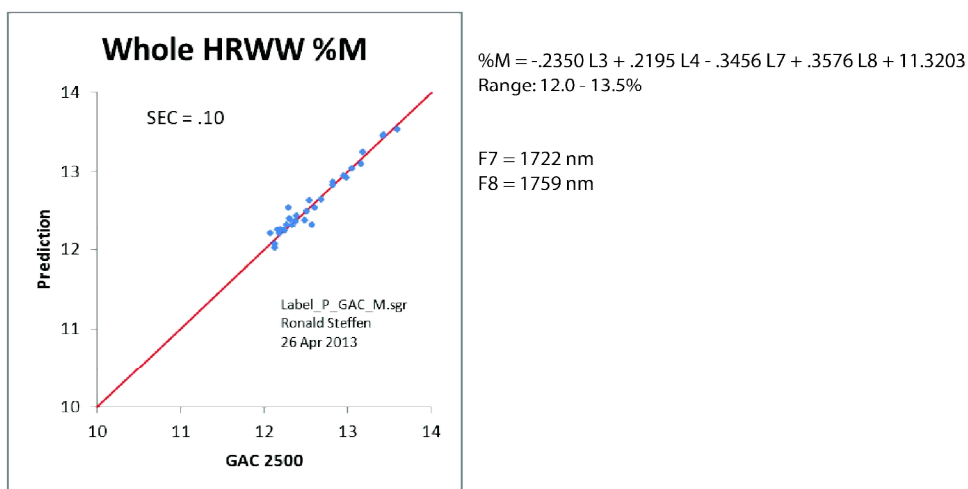
CALIBRATION DATA

Preliminary calibrations for HRWW moisture and protein have been developed. The range and accuracy for these calibrations are provided below along with the constants for the prediction equation. Accuracy for both moisture and protein is given by SEC (Standard Error of Calibration). Cross validation is used at arriving at this value; thus it may be approaching SEP (Standard Error of Prediction).

% MOISTURE RESULTS USING GAC 2500 AS REFERENCE SOURCE

Figure 9

% Moisture Results using GAC 2500

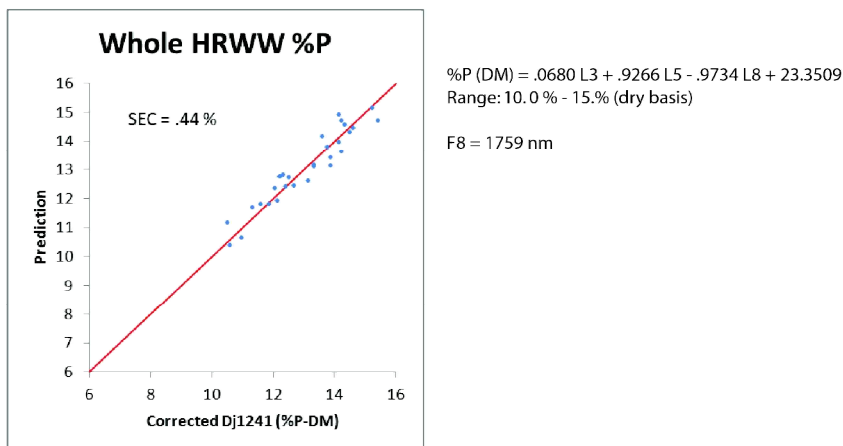


% PROTEIN RESULTS REFERENCING A CORRECTED FOSS 1241

(Corrected to eurofins lab analysis)

Figure 10

% Protein (Dry Basis) Results Referencing a Corrected Foss 1241





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