



**KNOW YOUR  
GRAIN  
KNOW YOUR  
FIELD**

**NIR-CS-3000B  
Whole Grain  
Analyser**

## NIR-CS-3000B...Whole Grain Analysis Systems

The NIR-CS-3000B Whole Grain Analyser is a bench top analyser designed for rapid measurement of protein, moisture, starch and oil in wheat, barley, corn, soybean, canola, oats, triticale, lupins and other cereals grains and oil seeds

There are two configurations that meet different user needs; **NIR-CS-3000B Whole Grain Analyser**

**NIR-CS-3000BT Whole Grain Analyser with Test Weight**

From farmers to grain traders to grain research, there is a NIR-CS-3000B system to suit. The NIR-CS-3000B and 3000BT can be connected to a secondary monitor where Grain Data Management Software can be run simultaneously to give a fully automated test system



### Features:

- *Built-in Touch Screen PC Operation*
- *Measures Protein and Moisture in Wheat, Barley, Oats, Peas, Beans, Sorghum and Rice.*
- *Measures Protein, Oil and Moisture in Canola, Soybean, Corn.*
- *Suitable for use in a farm office or weighbridge shed*
- *Built-in Test Weight Module (Optional)*
- *CropScan Test Weight and Screenings Module (Optional)*
- *Weighbridge software*
- *Internet software available*

Grain Data Management Software runs on the NIR-CS-3000B's built-in PC and provides a means of connecting to a weighbridge monitor and thereby capturing truck weights along with other grain quality measurement parameters. The Grain Data Management Software can be operated from a dual screen running in parallel with the NIR-CS-3000B's analysis software



# Manage Grain Quality and Quantity in the Cloud

MRC is a system including grain analysers, computers and software that can generate comprehensive information on the quality of grains in storage both on farm and at the silo. The system consists of

- NIR-CS-3000B Grain Analysis System
- Test Weight and Screenings System
- Grain Data Management Software

Grain Data Management Software reads the data from the NIR-CS-3000B, the tonnage from the weighbridge and combines the data into a spreadsheet. The data is sent to the Cloud where Reports, Tables and Graphs can be retrieved and displayed on the Software, printer or emailed

MRC sets up a Virtual Farm system where each silo, shed, bunker or grain bag is displayed. As grain is stored into a storage system, the running average , for Protein Moisture, Oil and Starch are - displayed in real time along with the tonnage. As grain is shipped out or transferred the running averages are updated and the tonnage ,corrected

Data fields for Variety, Grade, Farm ID, Paddock ID, Truck ID, Date and Time are available as pulled down menus. Simply record all the data required and reports can be generated based on each field. For example, recall all loads shipped from Silo 1 to customer XYZ on a certain date.

The screenshot shows the 'FARM DATA MANAGEMENT SOFTWARE' interface. It features a sidebar with silo information (Silo Name: SILO 1, Silo Volume: 1000, Volume To Fill: 400.00) and a main table with columns for Date, Time, Silo, Protein, Moisture, Test Weight, and Screenings. A navigation bar at the bottom includes buttons for 'Connect', 'Storage Location', 'Action Reports', 'Spreadsheet', 'Contracts', 'Product Maps', 'Tonnage', 'Reports', and 'Exit'.

**Grain Data Management Software allows farmers to be "Price Makers not Price Takers". We provides all the tools a farmer needs to properly know how much grain is stored where and what is its value.**

The screenshot displays the 'Virtual Farm' interface. It includes a table with columns for Silo Name, Volume, and %. Below the table are icons representing different silos and a 'Print Report' button. The navigation bar at the bottom is identical to the first screenshot.

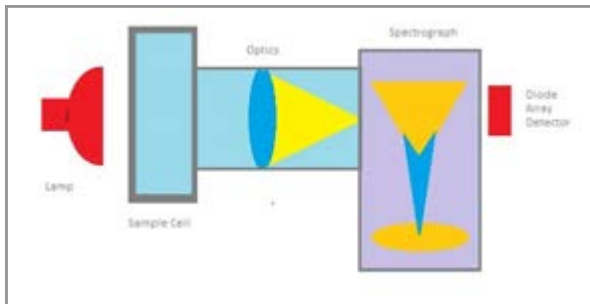
The screenshot shows a report form for 'ABC GRAIN' with the following details:

- Serial Number: 1165
- 2 FARMER RD LAVERTON NSW 2345
- TOM BROWN
- LOT 217
- Product: Wheat14B Date: 11/03/2015
- Sample: W5 Time: 10:50:55
- Variety: [Dropdown]
- Tonnage: [Dropdown]
- Protein % (cm): 13.0
- Moisture %: 11.2
- Test Weight kg/hL: [Dropdown]
- Screenings %: [Dropdown]

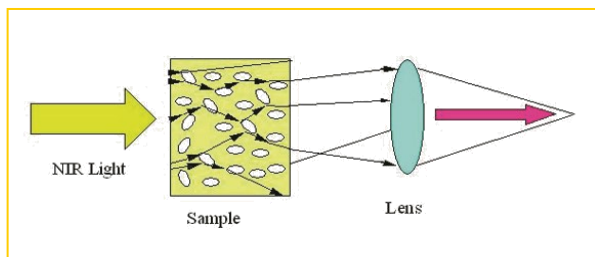
Buttons for 'Print Report', 'Ready', 'VIEWS', 'START', and 'SETTINGS' are visible at the bottom.

# Technical Specifications and Calibrations

**Near Infrared Transmission Technology:** Light from the lamp, passes through a sample of grains or oil seeds. The light bounces off the surfaces of the grains or oil seeds and propagates through the sample until it reaches the other side. The emerging light is focused into the slit of a flat field spectrograph that separates the light into its individual frequencies, across the wavelength range from 720-1100nm



The separated light is then directed onto a silicon photo diode array detector. This array detector measures the intensity of the light at each frequency to produce what is called the NIT spectrum of the sample.



Within this region of the electromagnetic spectrum, N-H (protein), C-H (fats and oils) and O-H (water) and C-O-H (carbohydrates) absorb NIR light at specific frequencies. The NIT spectrum contains information about the concentration of these components. Calibration models, stored in the CropScan's computer, converts this information to % Protein, % Moisture, % Oil and % Starch and displays the results on the screen.

Next Instruments has developed a range of calibrations for grains and oil seeds.

The following table shows the matrix of products vs constituents.

Product	Constituent
Hard Wheat	Protein, Moisture
Hard Red Winter Wheat	Protein, Moisture
Hard Red Spring Wheat	Protein, Moisture
Soft Wheat	Protein, Moisture
Soft Red Winter Wheat	Protein, Moisture
Soft Red Winter Wheat	Protein, Moisture
Durum Wheat	Protein, Moisture
Malt Barley	Protein, Moisture, Colour
Feed Barley	Protein, Moisture
Oats	Protein, Moisture
Sorghum	Protein, Moisture
Triticale	Protein, Moisture
Corn (Maize)	Protein, Moisture, Oil, Starch
Soybean	Protein, Moisture, Oil, Fiber
Canola	Protein, Moisture, Oil
Rice	Protein, Moisture, Amylose
Field Peas, Chick Peas	Protein, Moisture
Faba Beans	Protein, Moisture
Lupins	Protein, Moisture
Lentils	Protein, Moisture
Mung Beans	Protein, Moisture

Specification	NIR-CS-3000B
Wavelength Range	720-1100nm
Optical Detector	Silicon Diode Array
Lamp	Halogen 12VDC, 10W
Scan Rate	2-4 sec per scan
Sample Pathlength: Automatic	8, 16, 24 and 30mm
Display:	Touch Screen PC
Power:	19VDC using 110 -240VAC
Operating Temp Range:	5-45°C, 41-113°F,
Dimensions (cm) Weight (Kg)	40 W x 40 D x 33 H 12Kg

