



**KNOW YOUR  
GRAIN  
KNOW YOUR  
FIELD**

**CropScan 3000X  
Grain  
Analyser**

# CropScan 3000X Grain Analyser

The CropScan 3000X 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.

## **Features: CropScan 3000X Grain Analyser**

- *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.*
- *Dial-up Variable Pathlength System: 8mm, 15mm, 24mm, 28mm.*
- *Suitable for use in a farm office or weighbridge shed*
- *CropNet Weighbridge software*
- *Internet software available*



*The CropScan 3000X is suitable for use wherever whole grains and oil seeds are measured. The Cr3000X can run from a car battery and be used in the field as grains are harvested. It can be used in a silo or shed where grains are segregated and stored. It can be used in a grains processing plant such as an oil seed crusher, a flour mill or a food manufacturer.*



# CropNet...Manage Grain Quality and Quantity in the Cloud

CropNet 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:

- CropScan 3000X Grain Analysis System
- CropScan Test Weight and Screenings System
- CropNet Grain Data Management Software

CropNet Grain Data Management Software reads the data from the CropScan 3000X, 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 CropNet Software, printed or emailed.

CropNet 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 includes a header with 'Company Name: Next Instruments', 'User', 'Results File: C:\wgatData\Storage\_2014.csv', and 'Site Location: Benaroo'. The main area displays a table for 'Silo 1' with columns for Sample ID, Date, Time, Crop, Protein, Moisture, Fibre, Starch, Fat, Gross, Tare, Net, and Px. The table lists multiple samples (Bx10 to Bx17) with their respective values. Summary statistics are shown on the left: Protein % (CM) 10.4, Moisture % 9.5, and Metric Tons 600.00. Navigation buttons like 'Connect', 'Storage Locations', 'Active Reports', 'Spreadsheet', 'Contracts', 'Paddock Maps', 'Search', 'Reports', and 'Quit' are visible at the bottom.

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

The screenshot shows a summary view of the virtual farm system. It includes a table with columns 'Name', 'Volume', and '%'. The table lists various storage units: SILO 1 (1000, 80.0), SILO 2 (1000, 36.8), SILO 3 (1000, 59.2), SILO 4 (1000, 76.8), SILO 5 (1000, 28.0), SILO 6 (1000, 23.2), SEED SH (1000, 68.0), BAG 1 (250, 54.4), BAG 2 (250, 23.6), BAG 3 (250, 25.6), and BAG 4 (250, 83.2). To the right, there are icons representing silos and bags, and a navigation bar at the bottom with buttons for 'Connect', 'Storage Locations', 'Active Reports', 'Spreadsheet', 'Contracts', 'Paddock Maps', 'Search', 'Reports', and 'Quit'.

The screenshot shows the 'CropScan 3000X' interface for a 'HORSHAM DEV' location at 'B1 366 Edgar St'. Contact information is provided: 'TEL: +61 2 9771 5444' and 'EMAIL: support@nextinstruments.net'. The analysis results are displayed in a structured format:

Product:	Wheat15B	Date:	8/10/2015
Sample:	W4	Time:	14:44:18
Variety:	SUNRIPE	Temp:	37.1 °C
Grade:	APW		
Tonnage:	23000		
Protein % (CM)	12.9		
Moisture %	12.5		

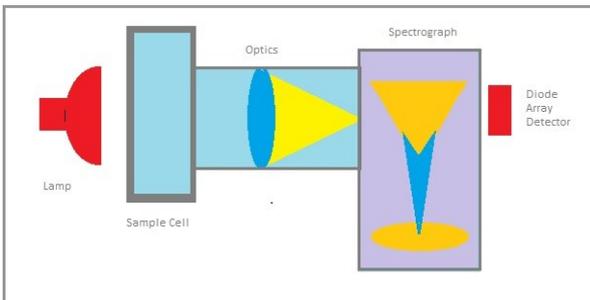
At the bottom, there are buttons for 'Print Report', 'Ready', 'VIEWS', 'START', and 'SETTINGS'.

# Technical Specifications and Calibrations

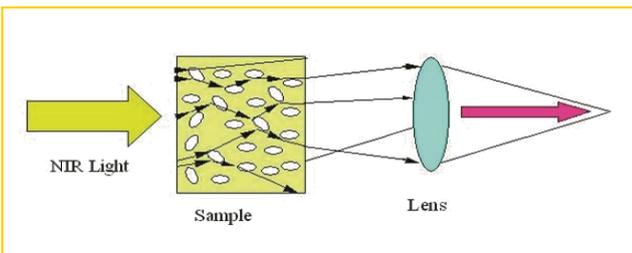
## CropScan Near Infrared

### 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	CropScan 3000X
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)	34 W x 33 D x 29 H 10Kg



**Manufactured by:  
Next Instruments Pty Ltd**

B1 366 Edgar Street, Condell Park, NSW, 2200, Australia

Tel: 612 9771 5444, fax: 612 9771 5255

Email: sales@nextinstruments.net Web: www.nextinstruments.net