CropScan

KNOW YOUR GRAIN

KNOW YOUR FLOUR

CropScan 3000F Flour and Grain Analyser

CropScan 3000F...Flour and Grain Analyser

Measuring Flour and Grain Quality Parameters

Near Infrared Transmission Spectroscopy is the most widely used technology for measuring protein, oil and moisture in grains and oil seeds. NIT analysers offer farmers, grain buyers, flour millers, pasta producers and grain processors a rapid means of determining the composition of their incoming grains, their process streams and their final products. The CropScan 3000F Grain and Flour Analyser requires no grinding and is designed for ease of use. The same system measures whole grains of wheat as well as flour and meals.

The CropScan 3000F Grain and Flour Analyser can be coupled with the SeedCount Image Analysis System and Specktek software to provide a complete wheat and flour measurement system:

- Protein and Moisture in Wheat
- Protein, Moisture, Ash, Water Absorption and Starch Damage in Flour and Semolina
- Specks in Flour and Semolina
- Protein and Moisture in Meals
- Protein, Moisture, Oil and Starch in Soybeans, Corn, Rice and other grains and oil seeds.
- Protein, Moisture and Oil in Corn Flour, Rice Flour, Soybean Meal and other processed grain products.

CropScan 3000F Flour and Grain Analyser

- Touch Screen Operation
- Measures Protein and Moisture in Wheat
- Measures Protein, Moisture, Ash, Water Absorption and Starch Damage in Flour and Semolina
- Weighbridge software available
- Internet software available



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

The Touch Screen PC provides users a simple to use interface. Once the NIR analyser has predicted the required parameters, the software prompts a set of customised data fields. The operator enters the following information:

- Sample ID
- Test Weight and Screening Weight
- Storage Location
- Variety
- Grade
- Source (Farm, Paddock or Supplier)
- Truck ID

Once the data fields are completed, the information is stored in the on board memory and can then be posted to the CropNet web site where it can be retrieved form a Smart Phone, Tablet or PC.

Reports are available at the press of a button for;

- Tabulated results
- Spectra
- Trends Plots
- Bin Averages for each silo, bunker or shed..

Near Infrared Transmission (NIT) Analysis of Whole Grains and Flour

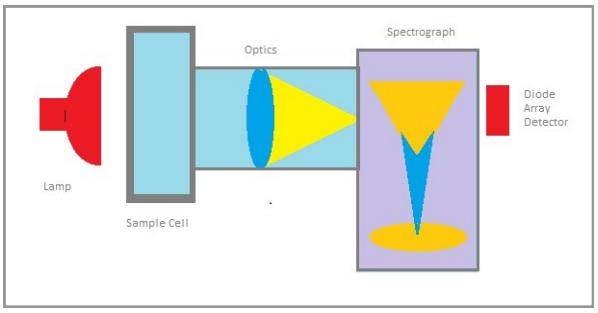
The figures below show the NIT spectra of cereal grains, oil seeds and flour. Light passes through a sample of wheat or flour and NIR light energy is absorbed in proportion to the concentration of the protein, moisture and starch. The more light absorbed at the specific wavelengths, the higher the concentration of protein, moisture and starch. Calibration models have been developed to relate the amount of light absorbed by the sample to the concentration of each component. These calibrations are stored in memory and used to predict the protein, moisture and other components in samples of incoming grains and flour.

The CropScan 3000F is the only NIR analyser designed specifically to analyse both Flour and Whole Grains. Simple, Precise and Reliable….

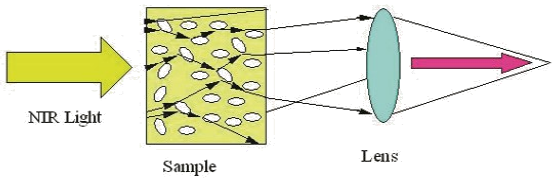
Technical Specifications and Calibrations:

How the CropScan 3000F Analysers work.

Light from the lamp, passes through a sample of grains or flour. The light bounces off the surfaces of the grains or flour 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 wavelengths. 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, % Starch, Water Absorption and Starch Damage and displays the results on the screen.

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

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
Lupins	Protein, Moisture
Corn (Maize)	Protein, Moisture, Oil, Starch
Soybean: Seeds and Meals	Protein, Moisture, Oil, Fibre
Rice	Protein, Moisture, Amylose

Specification	CropScan 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^{0}C, 41-113^{0}F,
Dimensions (cm) Weight (Kg)	40 W x 40 D x 33 H 12Kg

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