



Centre of excellence

The use of near infrared analytical technology (NIR) has become a common quality control tool used across the food industry, but what is the right solution for an organisation demanding the highest levels of quality control? Multinational food producers, Molinos Modernos found the answer in the form of a practical analytical instrument including networking potential and powerful calibrations allowing convenient control of both grain and flour.

Founded in 1963 in Guatemala City, Molinos Modernos is a leading Latin American food-producer with operations in six countries in Central America and the Caribbean. Its main function is the production and marketing of wheat, corn meal, and flour products. Today the company has manufacturing facilities in Guatemala, El Salvador, Costa Rica, and Dominican Republic and has seven points of sale located in the five countries of Central America, Dominican Republic and Haiti.

The commitment to quality begins with the analysis of wheat and flour in their sophisticated quality control laboratories. As part of a drive to find innovative, leading-edge technologies capable of improving the company's processes and response times for monitoring quality control, it was decided to search for a new NIR analytical solution. Mr. Manuel Mendoza, head of the quality control laboratory in

Guatemala, describes the decision making process and the impact the chosen solution has had.

Testing the tester

An Infratec 1241 Grain analyser came under the spotlight as a possible solution after it was seen at an international exhibition. "It generated interest from us because of the advantages and the official approvals that the instrument has in comparison to other NIR suppliers," says Mendoza.

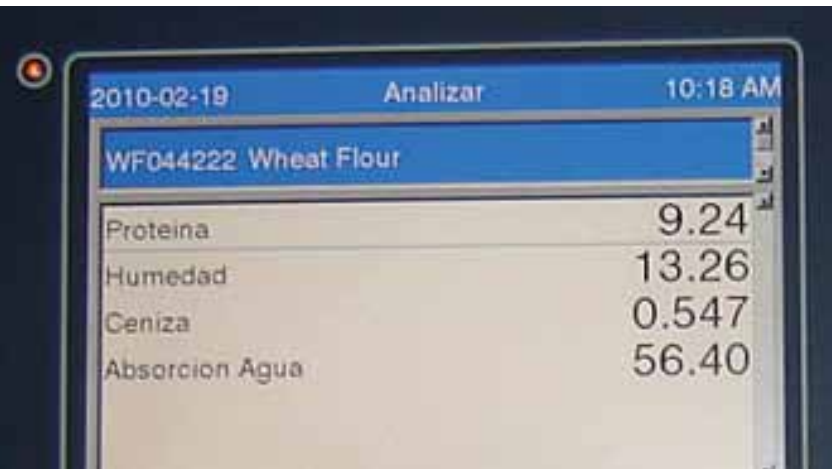
As a multinational company with several production sites, being able to connect the instrument in a network was an important consideration. Networked instruments make it simple and efficient to update multiple units with new calibrations and also to monitor individual instrument performance from a central location. "One of the future advantages that we saw with

the Infratec network is that we can connect all instruments in all our plants," says Mendoza. "This will give greater benefit from the network in order to standardise all equipment."

The performance of the calibration was another important consideration. An interesting aspect of the Infratec 1241 grain analyser is that the wheat and flour calibrations cover different types of flour and wheat. In addition, calibrations have been adopted by official institutions such as GIPSA, AACC, and USDA. The instrument is also used by the majority of wheat suppliers.

Additionally, the wheat calibration can handle samples with low and high rates of humidity that are important to measure during the tempering process. "High accuracy in measurements of grain moisture both before and after the addition of water in the temperate stage influences

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| 2010-02-19 | | Analizar | | 10:18 AM | |
|----------------------|--|----------|--|----------|--|
| WF044222 Wheat Flour | | | | | |
| Proteina | | 9.24 | | | |
| Humedad | | 13.26 | | | |
| Ceniza | | 0.547 | | | |
| Absorcion Agua | | 56.40 | | | |



Accurate analysis results can improve production, for instance, measurements of grain moisture can improve the efficiency and yield of the milling.

The laboratory staff with the new Infratec 1241 Grain analyser. from left, Julio Santisteban, Manuel Cuyan, Manuel Mendoza and Nelson Virula

the efficiency and yield of the milling,” explains Mendoza. “Fortunately the trial succeeded and now we are enjoying the benefits of good technology. The analyser is practical, fast and effective and allows us to take immediate actions when necessary.”

Immediate impact

The plant in Guatemala City began using the instrument in October 2008 with Artificial Neural Network (ANN) calibrations for compositional analysis for all types of wheat and flour. The solution has had a positive impact from day one.

“The Infratec resulted in an improvement in comparison with the NIR that we used previously, as the calibrations are very robust with very little variation due to changes in temperature. This stability saves time and reduces calibration maintenance work,” says Mendoza. “The monitor calibration is easy and requires little adjustment of the intercept and updates, because the calibration covers all changes with little susceptibility to variations in temperature.”

Grain or flour

Mendoza describes how this flexible solution allows the user to run samples of

both whole grain and flours. The appropriate sample type is simply selected via the screen; the sample is introduced and within 45 seconds the results are displayed. In contrast to the previous NIR solution, the same calibrations for wheat or flour can be used with a very wide variety and types of samples. “With the old NIR equipment we had to make many different calibrations intercept adjustments to cover the same variation, which could cause human errors,” says Mendoza.

Results can be trusted because the instrument is validated using official methods and the laboratory can confirm that they are obtaining excellent precision and accuracy.

Overall, the new instrument has saved time, allowing an immediate reaction when there is a shift in production of the flour quality parameters, plus an ability to correct any variation in the process as soon as possible by reducing rework and time. The instrument is also easy to use. All the laboratory personnel quickly learned how to use it; it provides practical, step-by-step instructions on how to clean the measuring unit and the conveyor belt.

Productivity in the laboratory has improved in terms of the number of analyses being done – especially for grain analysis.

“The Infratec 1241 has a positive impact and has become an essential tool for both the laboratory and for production - it is the centre of our laboratory,” says Mendoza.

By Antonio Smmitter, Scanco, Costa Rica. asmmitter@scancotec.com

Global calibrations for flour and wheat analysis

The milling sector is truly a global industry with raw materials being traded in international markets. FOSS global calibrations are developed using data obtained from various parts of the world.

The unique development of Artificial Neural Networks (ANN) has created large calibration models that cover an extensive area of measurements, which include multiple products from different geographical locations. Calibrations are continuously being expanded with new raw materials.