

# LIMS manages Müller's yogurt quality control

Making the transition from a manual system that's essentially paper-based to one which automates almost every quality control (QC) sample check and reporting process is a major undertaking for any company. With UK production over 1.8 billion pots of yogurt per year, the time was ripe for change at Müller and Thermo Fisher Scientific was the clear solutions provider.

## Profile

Molkerei Alois Müller (UK) is a market leader in European dairy products. The Müller UK site specializes in yogurt products; from low-fat yogurt offerings to yogurt and cereal combinations.

Müller UK sales have been increasing annually since the company entered the UK market due to a focus on quality and innovation. In fact, the state-of-the-art production facility at Market Drayton, has been significantly expanded several times to add more manufacturing, warehouse and distribution capability. Now, Müller produces more than a third of all yogurt eaten in the UK from the Market Drayton factory.

## Focus on quality control

The Müller UK labs are mainly focused on production QC. "But we test product from the start," Shaheen Adatia, Müller UK's Laboratory Manager explains. "Milk from farms arrives by tanker and is passed by pumps into silos, then separated into skim milk and cream, and some skim into concentrate. Yogurt mixes are made in tanks and batch sterilized. If the batch meets specifications, it is processed through a heat exchanger, cooled, and placed in an incubation tank where culture is added.



Every step in the process undergoes quality checks. During incubation, the pH is monitored and checked every two hours. After eight to nine hours of incubation, the pH has dropped and a final pH check is made when the yogurt is cooled."

With the checks being performed and recorded manually, there were many places a LIMS could be used to automate and expedite the QC tasks.

## Efficiency expectations

The decision to implement a LIMS was driven by the increase in production demand, and justified by the need to increase the lab's efficiency. Müller UK's paper-based system for tracking and reporting QC data was supplemented by a spreadsheet program. A LIMS would dramatically reduce the amount of error-prone paperwork and expedite testing.

The LIMS was also expected to assist significantly in real-time monitoring of Müller's production processes and play a pivotal role in ensuring quality control for finished product. By using a LIMS, Müller would be able to trend all data and make decisions and necessary improvements much faster.

## LIMS selection

Müller UK selected Thermo Scientific™ LIMS software to manage QC data for raw materials, in process, and finished dairy desserts. One of the reasons Müller selected the LIMS was that it could map easily to their business processes via the LIMS' Workflow functionality. The ease of implementation was also attractive and drove the decision to implement and configure the solution without any significant help from Thermo Fisher.

Integrating the LIMS with as many pieces of the lab equipment as possible allows for automated data transfer and additional efficiencies.

"The work processes were reviewed and the LIMS team asked, "What are we doing?", "Why are we doing it?", and "Can it be done better?" Adatia recalls. "From November to May, methods and workflows were input, systems were set up, and the layout of the lab and equipment reorganized to streamline operations."

Workflows for milk reception, separation and pasteurization were developed, along with workflows for other products and areas of manufacture.

The milk reception processes managed by the LIMS were developed to include barcoding samples from the tankers upon receipt, checking the milk for antibiotics, and checking the milk composition for fats, protein, lactose, and solids. Any out-of-specification parameters can be reported automatically. For instance, if a tank fails antibiotics, it gets rejected outright, the LIMS flags the result as being out-of-spec and creates a report automatically.



## IT involvement

Müller UK's Information Technology (IT) team was actively involved in the LIMS selection and implementation, and worked closely with the lab team to select and implement the LIMS. In fact, there's a dedicated IT person to ensure the integrity of the solution.

IT reviewed distribution of all the QC information, people were asked what they wanted, and then they were provided with the appropriate reports.

With the LIMS, IT determined the access privileges to the data, which included sample reports, daily averages, and moving averages. These are all read-only and certain reports such as sales are restricted to a for-your-eyes-only status that can only be accessed by certain levels with authority to do so.

The reports are more accurate and stay consistent within the system. Interfaces to various instruments and lots now ensure that there are no input or copying errors.



### The importance of training

The implementation team had to overcome training personnel on the new system. The majority of people were only used to the paper-based system of recording results.

Basic PC training was arranged at the very start for everybody. This was followed by an introduction to the LIMS, and training on the first workflow.

“A one month transition was scheduled to test the LIMS and ensure that everyone used it correctly,” Adatia states. “Then, once we were comfortable with using the system, the system went live.”

After the implementation of a couple of workflows, workshops were held so that everybody could further explore the system and ask questions in a more informal atmosphere. This proved to be a valuable tool in the implementation of the system.

### Summary

Implementing Thermo Scientific LIMS software has helped Müller UK’s lab to not only meet production demands with equanimity but will also position them to meet future challenges.

At the time of the LIMS installation, incoming and outgoing milk products, storage silos and separator workflows were tracked by the LIMS, however a lot of product had yet to be incorporated. The goal for future phases of this installation is to enable automatic release of finished product.

“The LIMS is ideal as its flexibility allows us to expand and develop the services provided by the Laboratory,” he continues. “The LIMS also enables us to do more with the data, such as create trend analyses.”

Adatia also anticipates changes down the line with the roll out of corporate-wide solutions. In addition, the LIMS has the potential for integration with other business systems. With Thermo Scientific LIMS software in place, the lab is confident that they can meet these and other challenges.

### Partnering with Thermo Fisher Scientific

Thermo Fisher Scientific is the worldwide leader in laboratory software and services, providing enterprise-wide, multi-laboratory solutions that are relied on by food and beverage companies globally. To support our LIMS installations, we provide implementation, validation, training, maintenance and support from the industry’s largest worldwide informatics services network.

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