



An eye for quality

From slaughter to retail release, every step in the meat production process at Dovecote Park in Yorkshire is under the watchful eye of seasoned experts. Why then do they need no less than three different analytical instruments to track the content of fat and other parameters in products on their way to the supermarket shelves?

Clean and fresh and all under one roof – nothing gets missed at the meat production facility at Dovecote Park.

Retail production director, David Redman describes how the facility has an abattoir, a boning hall and retail plant giving total control from kill to pack. “This enables us to maintain quality and pass it on to our customers,” he says. “We are a primary supplier for a major supermarket and we encourage our staff to look at quality and only take on people we trust.”

But quality is not just in the hands of the experienced people working in production.

From X-ray to near infrared

Meat trimmings coming out of the boning hall are analysed on a FOSS MeatMaster which looks and works the same as an airport security scanner, but instead of checking your hand baggage for suspect items it performs X-ray analysis of entire batches of meat. It measures the fat content of all the meat while also checking for foreign objects.

The meat either goes into a maturation stock from where it is pulled out into the DoveCote Park retail or burger production or it is sold on to affiliated suppliers. The fat analysis has multiple benefits.

For affiliated suppliers it gives a reliable, documented reference that also avoids discussions about fat content. “Since we installed the MeatMaster about a year ago, we’ve only had one claim and we could look back at the records and prove that it was ok,” says Redman.

The X-ray analysis also helps to give feedback to the butchers in the boning hall about the fat/lean mix in the trimmings they are supplying. And heading downstream in the burger and retail process, it gives a complete and accurate picture of the raw material. Redman explains: “You can also do your own recipe. Say you are putting 40 trays through you can mix and match to get the right fat content in the batch.”

In the burger and retail area, the job of routine analysis is taken over by two easy-to-use benchtop analysers based on near infrared (NIR) analytical technology – the MeatScan for rapid fat analysis close to the burger production and a FoodScan for measuring fat, moisture, salt and collagen in the plant control room.

Unlike the X-ray technology that measures everything on a conveyor belt, the NIR instruments measure a sample taken from the production line. This is presented in a sample cup and a specific form of NIR technology called near infrared transmission is used to measure fat and other parameters. The light is transmitted through the sample and the instrument measures what comes out the other side using a calibration supplied with the instruments. Ground meat is not very homogeneous and a very reliable calibration is required that can account for the natural variations in samples. FOSS has therefore spent many years working with the meat industry

to develop ready-to-use calibrations based on literally thousands of samples from different types of meat and from around the world. The calibration has received approval from the AOAC in the United States of America and other national quality organisations.

The instruments are connected to the internet using FOSS mosaic software. This allows measurement results to be monitored remotely from the control room.

What the eye can’t see

The MeatScan and FoodScan instruments are kept pretty busy, for example, a typical 800 kg batch will be tested about four times an hour. It is used by operatives and QA staff and any out of spec results need to be flagged to supervisors. This part of the process is under the watchful eye of Primary process technical controller, Haruna Adama who describes how anything that goes through the blender is measured before it goes out. “We are required to meet the beef labelling standards, so if it says 10% fat on the label, we’ve got to make sure it is 10% fat,” he says.

The FoodScan is used for a pre-release check. Adama explains how it is all about getting the balance right. If the product is too lean it affects the taste and bite that their customers expect. And, if the fat level is too high they will be breaching legal requirements.

“Without the instruments it would be very difficult. You have got experts working on the line who have been working with these products for maybe ten years, but to be able to visually assess the product – you physically can’t do it. You can guess, but it is not always right,” he



The FoodScan is used for a final, pre-release check testing for fat, salt, moisture and collagen in a single measurement taking less than a minute



Fast fat analysis: this robust and easy-to-use is situated close to the burger production.

Wine analyser helps to make the best of great grapes



Measuring it all: the MeatMaster tracks the fat content in trimmings from the boning hall to within 0.2% of targets.

says with a smile. "These instruments are just brilliant tools. You can hit your targets and many of our customers are using the same tools, so whatever results you get, they are on a par with the others. This equipment is essential to us in aiding our process."

Quality and consistency

While meat producers have been making quality products for centuries without the aid of modern technology, recent developments in routine analysis technology make it an obvious pre-requisite for consistent quality products. "Quality is paramount" says David Redman. "With the MeatMaster it is usually within 0.2% of targets, so if we are going for 20% fat, we can get around 19.8%. Without those instruments you are most probably going out too lean or too fat. It also picks up bone and foreign objects which is a plus."

Likewise, the MeatScan and FoodScan provide an accurate measurement in the production process and the FoodScan is used for the final check on fat, salt, moisture and collagen. "Our customers require this and without the FoodScan we would not be able to measure these parameters," he says. "Also we have regular customer audits and the test information is passed on."

A good relationship with FOSS and ongoing support are important elements of the overall routine analysis solution. "The support is second to none and the equipment is among the best, otherwise we would not be with them," says Redman. Referring to the whole routine analysis system, he concludes: "It's a must, you should have such a system in place. Without this equipment you don't know where you are because even the most expert person cannot say exactly what the fat content is in the product."

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[Learn more about FOSS meat solutions here.](#)



The Châteauneuf du Pape region needs little introduction as a source of quality wine. But even here, winemakers can always improve results.

Local producers such as Maison Brotte are using a FOSS OenoFoss analyser to provide rapid analysis of grape must and wine as an extra perspective in the winemaking process. The information is used for sourcing grapes and controlling the process. Oenologist Cyril Tisopulot says: "It is a very fast tool and gives almost instantaneous results."

The OenoFoss offers a number of different measurements each giving opportunities for improved knowledge and decision making. "The parameters are very interesting," says Tisopulot. "You have sugars for maturity, degree of alcohol for labelling purposes, malic acid for monitoring malolactic fermentation, total acid for acidity and volatile acid for daily checks." Tisopulot explains that the instrument only requires a

few drops of wine or must so there is no loss involved. His only wish is that the OenoFoss could also perform analysis of sulphur dioxide. This is provided by another higher-end FOSS solution, the WineScan SO2. "One should also mention the after-sales service which is excellent," he adds.

The Châteauneuf du Pape region is well known for the large rounded heat-absorbing stones known as galets that can be found in some vineyards, but in reality a variety of soils and the strong southern Rhône sun also contribute to full-bodied reds and unique whites. There are 13 grape varieties permitted by the appellation with Grenache, Mourvèdre and Syrah playing a central role in most wines. Châteauneuf du Pape wine has a minimum strength of 12.5% alcohol - the highest of any French wine.

[More about Maison Brotte can be found here: www.brotte.com](http://www.brotte.com)