FOSS

Analytical solutions for the meat industry

Dedicated Analytical Solutions

# Tighten up with accurate routine analysis

The speed and accuracy of routine analysis is a vital tool in a modern meat production.

Let's take analysis of fat as an example. Make the fat content in your products too low and you risk losing profit. Make it too high and you risk dissatisfied customers and a warning from your controlling authority. But make it just right and you can maximize profit while meeting end product declarations exactly.

In addition to measuring fat, you can do rapid checks on protein, moisture, collagen, salt content etc. and scan for foreign objects. Measurements can be made by anyone on robust, easy-to–use instruments positioned at the production line, in the laboratory or directly in-line in the process. And if you are engaged in traditional laboratory analysis, safe and reliable FOSS solutions help you to give reference analysis results with speed and accuracy.

FOSS routine analytical solutions can help you to:

- Optimise raw material use
- Keep the fat content of products exactly in-line with standards
- Improve production efficiency
- Comply with end-product specifications and declarations
- Ensure end-products are free from foreign objects like metal and bone
- Satisfy legal demands
- Maximise profits
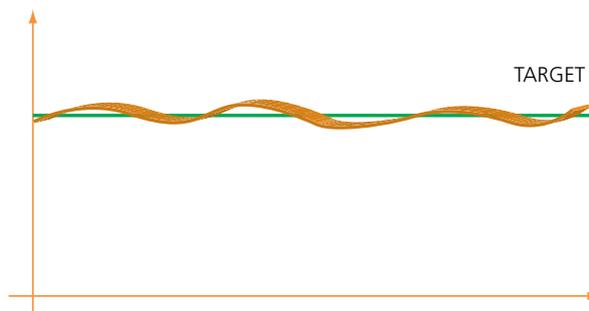
TARGET

Consistent quality at lower cost: fat content follows your target closely so that you get the right lean/fat ratio and the right end-product.
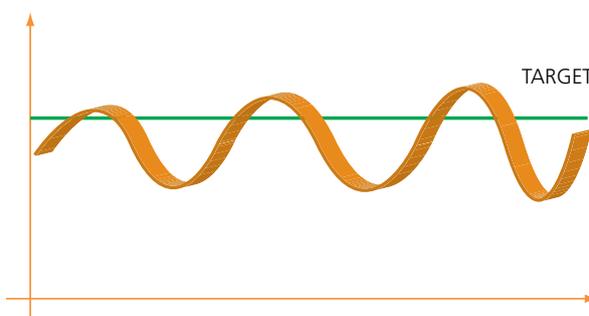
TARGET

Inconsistent quality at higher cost: fat content swings above and below your target leading to inconsistent products and/or overuse of expensive lean meat.

FOSS analytical solutions give you accurate, timely information according to the demands of your production environment.

Our knowledge and experience ensures that your process analysis solution is right for your demands and can be applied quickly and easily to your production.

A typical analysis solution from FOSS includes:

- FOSS analyser based on proven technology
- Software for routine operations and/or process control
- Ready to use calibration for instruments based on near infrared and X-ray technology
- Remote analyser surveillance by FOSS experts – securing you high accuracy of your instrument
- Preventive maintenance agreement to secure optimal uptime and performance

> "The MeatMaster has represented a groundbreaking investment in the future of the St Merryn Victoria plant, increasing our capacity, giving greater control of our products and better use of our raw materials."

Richard Clatworthy, Technical and Group Sales Manager, St Merryn Food Group, UK

Get the most from trimmings

The fat content in meat trimming has traditionally been measured by periodic tests with "butcher's eye" or by chemical analysis methods.

However, such methods do not offer satisfactory accuracy for trim product and process control.

Routine analysis based on accurate and fast analytical methods will give you much more control of your trim production and will help you to optimise the sales value of your trimmings.

Using such methods for routine analysis you can:

- Avoid lean meat give away in each carton and/or pallet/combo
- Optimise the value of trim categories by reducing the variation between each carton on a pallet
- Reduce the risk of fat fines/fat claims
- Stop foreign objects getting into final products
- Get a protocol (fat, weight and Foreign Object Detection) of cartons on a pallet or combos for use in case of disputes

Analytical solutions for controlling trimmings

With its high accuracy, obtained from 100% scanning of the meat, MeatMaster™ II has become the standard for in-line fat analysis of complete batches of meat. Foreign object detection is performed at the same time.

At line analysers such as MeatScan and FoodScan are alternative solutions for testing samples from batches.

CL 6%

CL 12%

CL 18%
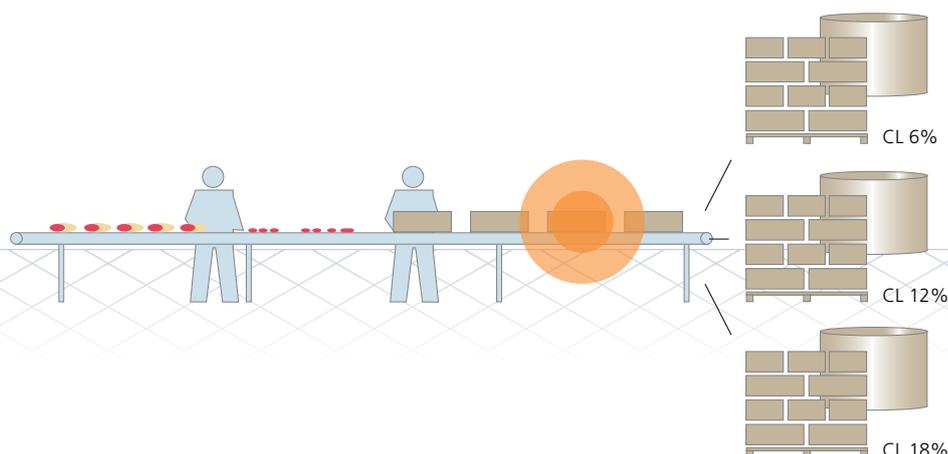
About X-ray technology

X-ray scans 100% of the meat passing though the scanning area. X-ray can be used for scanning chilled or frozen raw meat and will give information about content of Fat, Weight and will detect foreign objects with a density higher than 1.7 g/cm3 (metal, bone, glass etc.).
The FOSS patented x-ray system in Meat-Master™ II uses two individual x-ray sources, which results in the highest possible accuracy. The system scans meat in the form of whole cuts, trimmings or minced meat up to 20 cm height. The meat can be in cartons, plastic trays or loose on the belt.

Objective grading of cuts

With x-ray technology it is possible to objectively grade whole cuts like pork bellies, pork hams etc. into uniform categories, which is not achievable via the traditional visual inspection. The grading is based on fat measurement and can be combined with image recognition.

The benefits of this technology apply for manufacturers of bacon, producers of dry ham products and other manufacturers of finished meat products based on whole meat cuts.

Suppliers of raw meat cuts can also exploit the opportunity to ensure that deliveries are to specification (size, length, width, thickness), CL-content and without foreign objects.

This grading method helps you to:

• Enhance your brand image by improving final product consistency
• Improve production yield from sorting raw material into uniform categories
• Improve production yield by reducing rejection rates of final products
• Minimize labor costs for inspection of the cuts
• Avoid paying for raw material which does not fulfill specifications

Analytical solutions for grading cuts
The MeatMaster™ II in-line analyser can be used to segregate the meat cuts according to CL-content and size (dimensions) while checking for foreign objects at the same time.

GRADE I

GRADE II

GRADE III
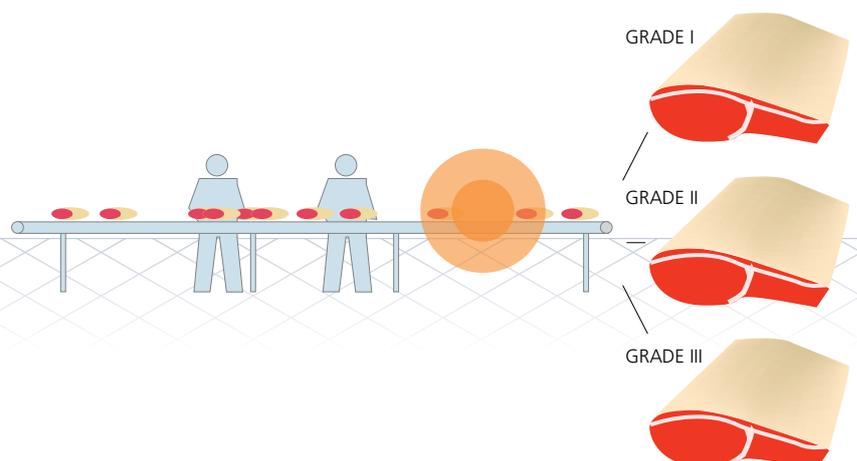
More profit from ground meat

A fast and accurate standardisation process is the key to success in production of ground meat based products.

With FOSS solutions it is possible to obtain an accuracy at batch level (like the mixer) as low as 0.5% or even better. Thereby, in many cases, improving the accuracy by 2-3% resulting in improved earnings. The payback time of the investment can be as low as a few months.

With fast and accurate FOSS solutions you obtain maximum control of your ground meat production helping you to:

- Optimise raw material use
- Process fast standardization of batches
- Increase line efficiency by reducing time for manual sampling, sample preparing, testing, possible adjustment and re-work
- Improve brand recognition leading to more sales from improved final product quality and consistency
- Prevent foreign objects in final products and/or potential damage to machinery
- Pay exactly the right price for raw material

Analytical solutions for ground meat and sausage production

FOSS provides solutions for rapid and accurate supplier and process control for production of ground meat and sausage products for use at-line (MeatScan™, FoodScan™) and in-line (ProFoss™ and MeatMaster™ II).
Solutions are available also for final product control.
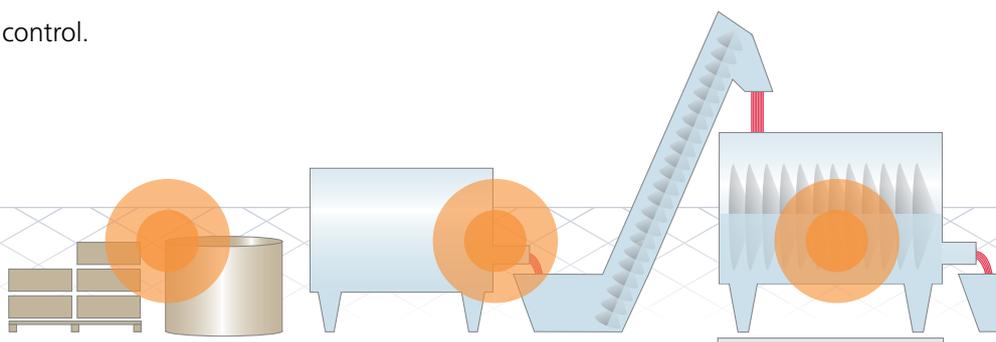
About NIR technology

FOSS uses NIR transmission method combined with ANN calibrations in MeatScan™ and FoodScan™.

The transmission method is superior to reflectance method when analysing inhomogeneous products like meat. The superiority comes from being able to scan through the meat and not just the surface as the reflectance methods do.

The ANN calibration model results in better accuracy than analysers using PLS calibrations. Furthermore, the ANN calibration model is cheaper for the user.

Quality sausages at the right price

As with ground meat, a fast and accurate analysis of CL/fat is vital for profitable sausage production as well as other parameters like content of moisture, protein etc. can be important.

Factors such as mixing time and fat smearing in dry sausage production can also affect quality and shelf life.

FOSS solutions help you to:

- Standardise batches according to specifications and increase line efficiency by reducing time for manual sampling, sample preparing, testing, possible adjustment and re-work.

- Reduce mixing time in order to avoid overstressing the raw material
- Optimise use of raw material
- Pay exactly the right price for raw material
- Improve brand recognition leading to more sales from improved final product quality and consistency
- Avoid the risk of fat smearing in dry sausage production (fat smearing on the inside of the sausage casing will prevent the moisture to move out of the sausage during the drying process. Excess moisture can cause bacteria growth leading to shortened shelf life and reduced quality).
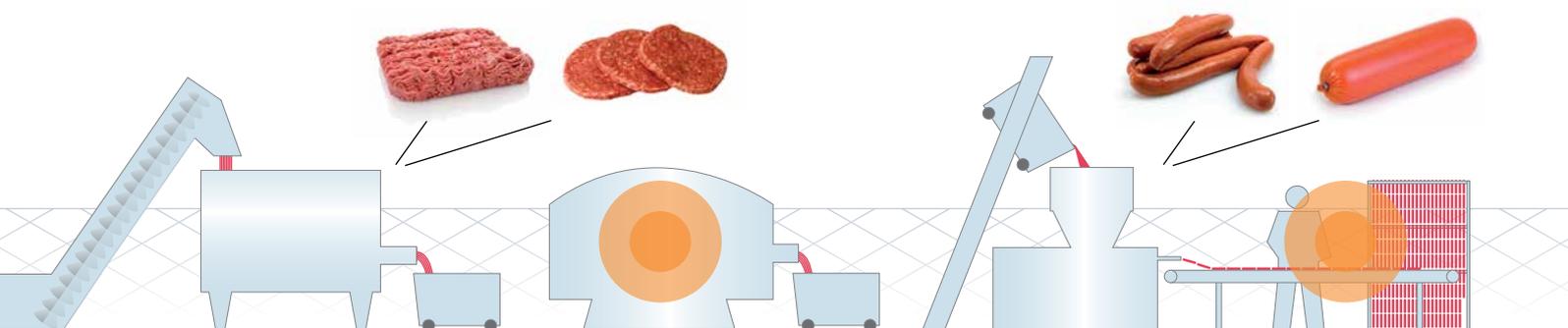
About in-line NIR technology

FOSS uses NIR Lateral transmission technology for in-line poultry MDM analysis.
The lateral transmission method is superior to NIR reflectance solutions as it penetrates deeper (10-15 mm versus 0.5-1 mm with reflectance) into the sample and therefore gives you a more representative measurement. Furthermore, the risk of fat smearing on the sensor & detector, which often is a problem when using in-line probes, is nearly eliminated with the Lateral Transmission method.

Produce poultry MDM to specifications

A fast analytical solution is the key to obtaining complete control of your poultry MDM production.

This gives you the possibility to adjust your production process to improve final product consistency and secure that your MDM product is produced according to specification. Furthermore, you can obtain information of final batches so you can segregate them according to fat content.

Users of poultry MDM, like manufacturers of chicken or turkey sausages, nuggets, etc., can also benefit from a FOSS analyser by checking incoming raw material (supplier control) and improve process control resulting in improved final product consistency.

Advantages of the poultry MDM process and final product control include improved yield and profit from:

- Saving on lean meat give away
- Consistent product quality
- Reduced customer claims
- Increased production efficiency
- Eliminating cassation of MDM product
- Reducing or eliminating downgrade

**Typical analyser
Installation point**
Installation after the bone separator and before packing of product.
Hygiene certified according to USDA
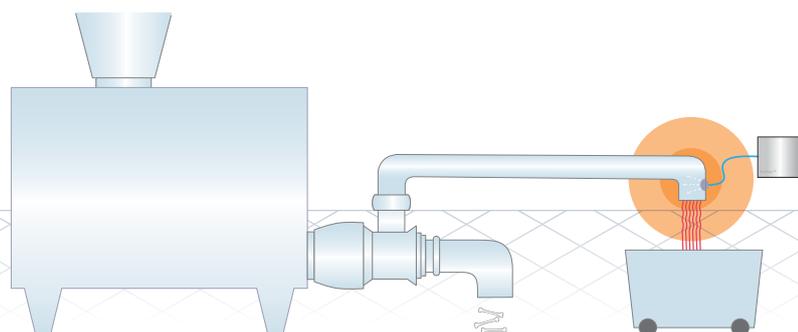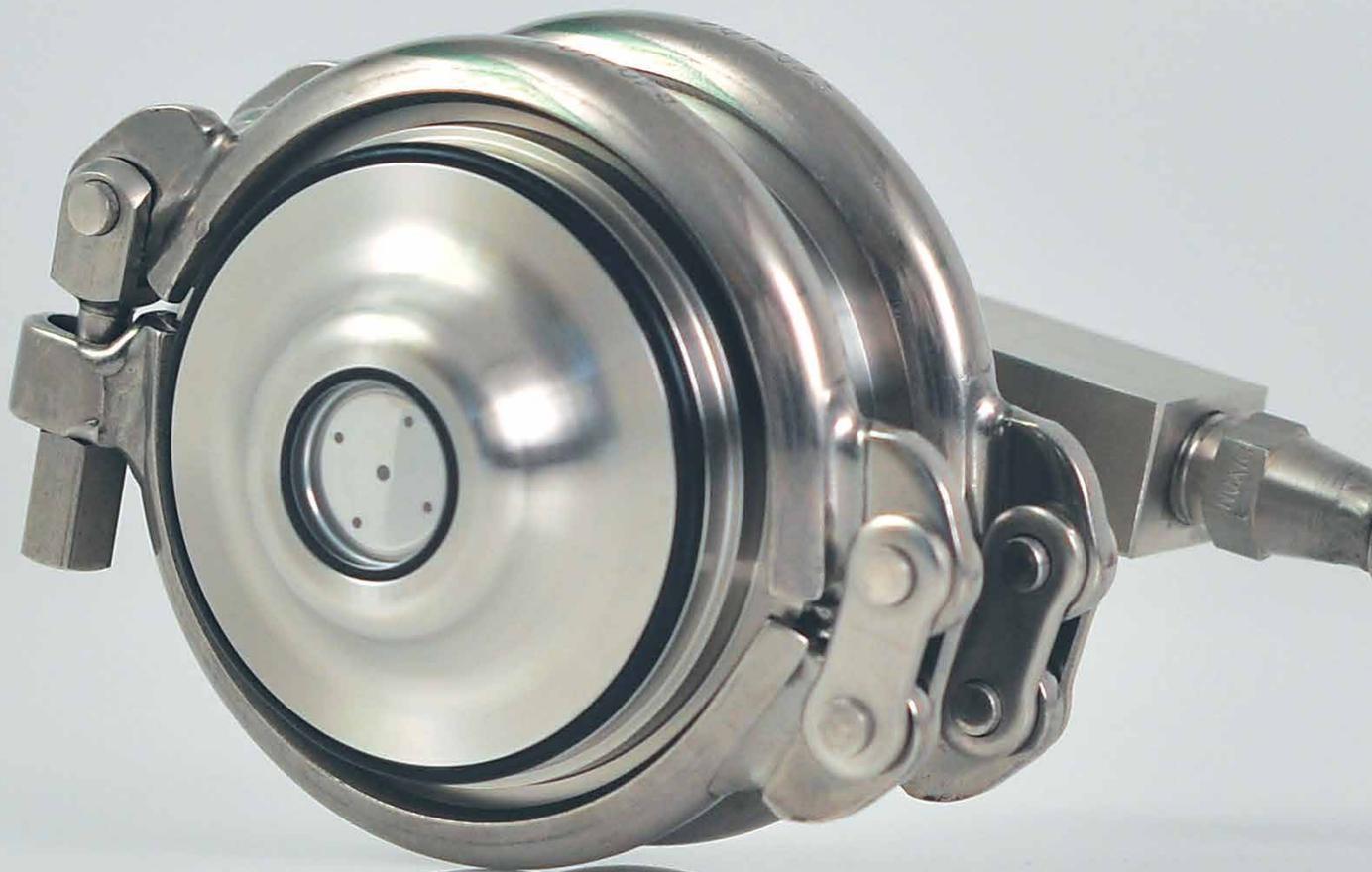
FOSS solutions for process and product control

MeatScan™

MeatScan™ measures fat in raw meat and meat products. It can be used by anyone and placed anywhere in the production for checking incoming raw material, control standardisation of batches, check fat content in final products etc. The analyser is particularly relevant and dedicated for small and medium sized plants. The analyser can be networked for remote access and support. For more advanced requirements, the FoodScan™ is an ideal upgrade option.

Sample type:
Homogenized samples of raw meat, intermediate material and final products

Parameters:
Fat, Moisture

Approvals
Aus-Meat

See how it works
www.foss.dk/meatscan

FoodScan™

FoodScan™ is the "gold standard" in meat analysis and used by all types of meat plants globally. It is a versatile analyser which can be used for many purposes: checking incoming raw material, supporting process control of more production lines, final product control etc. FoodScan is typically relevant for medium and large size plants. The analyser can be networked.

Sample type:
Homogenized samples of raw meat, intermediate material and final products

Parameters:
Fat, Protein, Moisture, Collagen, Salt

Approvals
AOAC, Aus-Meat, Polska Norma

See how it works
www.foss.dk/foodscan

> "With MeatMaster we carry out fat analysis, weight determination and most importantly, checks for foreign objects allowing us to offer very safe products. MeatMaster allows us to always offer fresh and above all standardised and analysed products."

Mr. Hans Jürgen Kummer, General Manager of Schiller Fleisch

MeatMaster™ II

Using X-ray technology, MeatMaster™ II gives continuous, real-time results based on scanning 100% of the meat passing through the analyser. Any type of raw meat can be scanned by the solution. Automatic standardisation of a batch is possible. MeatMaster is the optimal solution for medium and large size operations producing raw meat or processed meat products. MeatMaster's accuracy is outstanding.

Sample type:
Raw meat in any form, chilled or frozen. Max. 20 cm. high.

Parameters:
Fat, Weight, Foreign objects (Metal and Bone)

Approvals
Aus-Meat

See the case stories
www.foss.dk/meatmaster

ProFoss™

ProFoss™ is installed in-line for measuring content of fat, protein and moisture in meat transported in pipe; the results can be used for real-time monitoring and possible adjustment of the production process. ProFoss is relevant for producers of poultry mdm and other meat product producers where meat products are transported in pipe.

Sample type:
Meat transported in pipe

Parameters:
Fat, protein, moisture

Read more
www.foss.dk/profoss

FOSS solutions for laboratory use

Kjeltec™ systems

The Kjeltec 8000 series consists of three models: 8100, 8200, and 8400, for simple and safe distillations with different levels of automation. The Kjeltec 8400, in combination with 8420 or 8460 sampler and Tecator AutoLift digestors, provides the ultimate in automated Kjeldahl analysis. Approved by AOAC and ISO.

Soxtec™ Systems

FOSS Soxtec™ systems offer fast and safe fat analysis with varying levels of automation. The new Soxtec™ 8000 range, consisting of an extraction unit, a hydrolysis unit, and a single filter that is common to both units, allows you to perform acid hydrolysis and Soxhlet analysis in one integrated action.

Tecator™ Digestion Systems

Tecator Digestion systems, with integrated programmable controllers, provide economical and efficient digestion for Kjeldahl analysis. A digestion system is based on a digestion block and tube rack with capacity for either eight, twenty or forty tubes.

Sample Mills

Sample Mills cover a broad range of sample preparation applications for both traditional wet chemistry and near infrared analysis.

“ **"I can only recommend FoodScan. The instrument has performed perfectly and the advantages of rapid daily measurements are enormous."**

Tibet Ukus, Director, Meetab

Secure your investment with a FossCare™ Support Agreement

Let FOSS take care of you for a maximum return on your analytical investment. Get a four year warranty as part of the new FossCare Premium Preventive Maintenance Agreement or two years as part of any other FossCare agreement. In addition to the peace of mind afforded by the warranty period, the continual preventive maintenance pays off by keeping your analytical instruments working perfectly every day, year after year.

Why preventive maintenance?

As with any analytical solution, it is essential that your FOSS instrument receives regular maintenance to ensure optimal performance and extended lifetime. Avoiding expensive downtime is a matter of following factory standards and preventively replacing parts before they wear out. In turn, this helps ensure reliable and consistent results at the highest level.

Preventive and predictive maintenance combined with global support from 300 dedicated service, application, software and calibration specialists keeps your instrument running perfectly all year round.

Benefits of a FossCareTM Support Agreement:

- Extended Warranty (two or four years depending on the chosen agreement)
- Regular maintenance; the instrument is diagnosed, cleaned, adjusted, tested, fine tuned and recalibrated
- Minimal downtime from replacing components before they are worn out
- Consistent, accurate and reliable results you can always trust
- Preventative maintenance visits when it suits you (your business)
- 24/7 phone support - no need to worry about closing hours or PO
- Low, fixed service budget prevents unexpected expenses
- Discounts on additional services, spares, training, reagents, consumables and software upgrades

Centralised calibration, management and configuration of instruments

For meat companies, in particular the ones with multiple sites, our sophisticated networking tools enable internet-based remote instrument monitoring and diagnostics. With this software, internal or external experts can precisely configure and monitor FOSS instruments regardless of their location. Calibration updates and bias corrections are easily and safely handled centrally through the network and the system can be monitored on a daily basis.

" Because the machine has the ability to link directly to FOSS via the internet, and receive and transmit data, I have confidence of ongoing back-up support for the machine"

"… Networking with FOSS first of all provides us with "peace of mind" as we know there is a FOSS specialist managing and doing surveillance on our instrument. We have outsourced all complexity related to running our instrument, calibrations, diagnostics, etc. Networking makes sure that the performance of our entire setup is optimised at all times, thereby allowing us to focus on our real business."

"… Adjusting slope/intercept, etc., is surely not my expertise, so it is valuable having FOSS do this."

"… Having a large population of instruments, the central security and management aspect of networking is extremely important. Operating our instruments is no longer dependent on having on-site specialists as all complexity is handled by our contact at FOSS."

FOSS your partner in production of quality meat products

FOSS is the world's leading provider of analytical instruments for the food, agricultural, chemical and pharmaceutical industries.

With over 30 years of experience in the meat industry, FOSS is known as the leading global provider of a versatile range of meat analysis solutions, from laboratory to at-line and in-line solutions that use everything from traditional wet chemistry reference methods to the most advanced analytical methods, such as near infrared (NIR) and X-ray.

More than 2000 FOSS meat analysis instruments are in operation at plants and laboratories worldwide. Over 90 of the world's top 100 food and agriculture companies use FOSS solutions.

FOSS analysers for meat analysis have obtained several recognised international approvals like AOAC, AusMeat, ISO etc.

FOSS is a privately-owned company employing over 1200 worldwide. FOSS has manufacturing, research and development facilities in Denmark, Sweden, U.S.A. and China. Solutions are sold and supported through FOSS sales and service companies in 25 countries and by more than 70 dedicated distributors.

Visit www.foss.dk for more information about how FOSS dedicated analytical solutions can help you to produce meat products effectively and with optimal profit.