

**FOSS**

Analytical solutions for the feed industry



Dedicated Analytical Solutions





*19 out of 20 of the biggest feed companies in the world currently use a FOSS NIR solution to improve standards in animal nutrition*



# Leading the way in analysis for the feed and forage industry

Throughout the industry, our customers rely on the accuracy of the information provided by FOSS analytical solutions. With rapid and reliable measurements of crucial parameters, at-line and in-line, our instruments and software allow you to leverage real-time production data and take action that saves costly rework and wastage of valuable resources.

FOSS NIR solutions include instrumentation, calibrations, calibration development software, instrument network software as well as instrumentation for wet chemistry reference methods. All solutions are supported by our global organisation.

## Feed production

The more expensive the ingredients, the more important it becomes to control them. FOSS solutions are used throughout the world to provide real-time data for feed production optimisation. This leads to cost reductions and ensures consistent quality. The solutions are supported by the international premix and additives companies providing calibrations and other services to the compound feed industry.

### Typical parameters include:

Protein, Fat, Moisture, Starch, Crude Fibre, NDF, ADF, Ash, Ca, P, Amino Acids

## Feed ingredients

FOSS solutions cover a wide range of feed applications including meat and bone meal, fish meal, soy meal, DDGS and many other feed ingredients. You can optimise production through at-line or in-line measurement for continuous process control. For instance, protein and moisture optimisation, reducing variability and producing closer to target will lead to considerable cost savings and a fast return on investment.

### Typical parameters include:

Protein, Fat, Moisture, Starch, Crude Fibre, Ash, Amino acids

## Pet food production

Optimal use of raw materials and a tight control throughout production can lead to considerable cost savings. FOSS solutions are designed to be placed at-line, close to production, or in-line, making it possible to tightly control valuable parameters such as moisture, protein and fat. Our full range of pet food analysis solutions cover both dry and wet food production from measurement of incoming raw materials to the final product.

### Typical parameters include:

Protein, Fat, Moisture, Starch, Crude Fibre, Ash, Ca, P, Amino Acids and more

## Feed and forage laboratory

The ISO 12099 standard opens up new possibilities for feed and forage testing laboratories to provide certified analysis services based on near infrared (NIR). From a single installation to management of a network of instruments, FOSS ensures success with any NIR application.

### Typical parameters include:

Protein, Fat, Moisture, Starch, Crude Fibre, Ash, Ca, P, Amino Acids



Sample Name  
Date  
Time  
Location

# Optimise quality control and see the savings

Our versatile range of analytical solutions are designed to give you fast access to accurate data throughout the production cycle – from intake of raw material to process control and end product specification. With this information, you can supply the high quality products your customers expect and make the best possible use of your valuable resources.

## Did you know

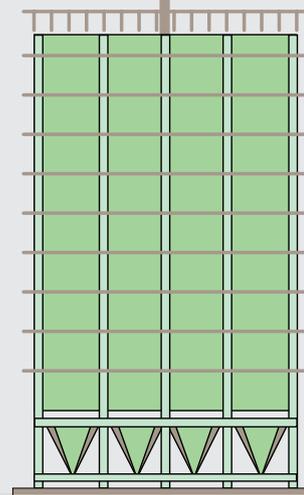
A feed mill producing 70,000 ton per annum can save more than € 20 000 in reduced rework through tighter production control

## Did you know

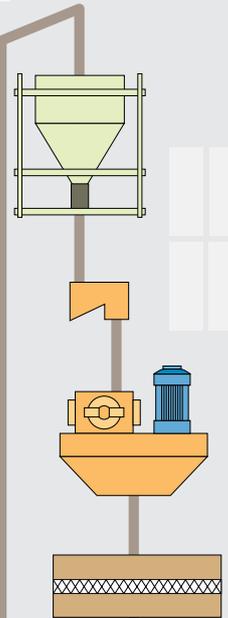
Savings of at least € 2.00 per ton of soya meal can be made by matching protein targets more closely.



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## 1. At intake – ingredient control

- Control up front for production planning
- Segregate raw materials optimally
- Reject out of spec materials
- Ensure fair payment to suppliers

## 2. At the mixer – Process control

- Spot weighing problems
- Identify incorrect raw materials
- Ensure production meets requirements

## 5. Laboratory analysis

- Improve safety and convenience with automated chemical analysis
- ISO and AOAC supported reference methods
- Remote configuration and monitoring through NIR network software

### Did you know

More consistent feed quality leads to more satisfied customers and considerable savings in less recalls and warranty claims. Surveys have shown annual savings of € 35,000 or more.

### Did you know

NIR can replace expensive and time consuming wet chemistry in the laboratory.

## 3. After the cooler – quality control

- Spot weighing problems
- Identify incorrect raw materials
- Determine homogeneity of production
- Ensure composition meets final product specs
- Create powerful QM documentation for end users

## 4. At out-loading – delivery control

- Monitor quality of raw materials and processes
- Spot potential loading problems
- Ensure correct labelling and product specifications

# NIR – accuracy you can rely on

FOSS offers a range of NIR solutions to meet the individual needs of our customers. Regardless of the NIR solution you choose, you can be sure that it is carefully calibrated to ensure the highest level of accuracy. All NIR solutions are designed for ease of use and can withstand even the toughest production environments.



## NIRS™ DS2500

This highly versatile solution allows you to reuse existing calibration data on a high-performance level that performs across a broad wavelength range of 400 to 2500 nm. The optimal choice when you do not want to compromise with performance and wants full flexibility in choice of products and parameters.



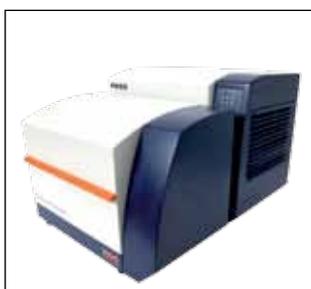
## NIRS™ DA1650

This “easy to install and operate” solution gives instant improvements to product quality and production processes. It can be supplied pre-calibrated or it can be calibrated by the user. A good choice when the focus is on measuring standard parameters such as protein, fat and moisture.



## ProFoss™ for feed

The ProFoss™ Feed solution offers continuous measurements of main animal feed parameters, such as moisture, protein and fat, directly in the feed processing line using high resolution technology.



## XDS Rapid Content Analyser™

The XDS RCA™ is a high performance monochromator-based solution with a full wavelength range of 400 to 2500 nm. Its flexible sample presentation makes this the ideal tool for research and special applications.



## InfraXact™

This tried and trusted solution is easy to use and highly reliable. It comes with a variety of applications to monitor daily processes in the feed plant.



*“All you need is an internet connection, a PC and the software installation. Yes, it is easy to join the network.”*

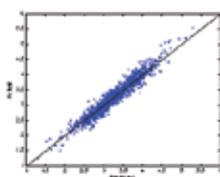
*Javier Lallana, Trouw Nutrition, Spain\**

## Improve performance with intelligent remote support



With a FOSS networking solution, such as MOSAIC or RINA, you can enjoy specialist assistance with configuration, support and surveillance around the clock. Our centralised team monitors, remotely manages and optimises your instruments allowing a level of accuracy that has never before been possible.

Constant monitoring minimises downtime, sub-standard performance and automates all adjustments and updates. Data security is further improved by the fact that your data is stored and protected centrally. This proactive networking approach keeps your solution functioning optimally and lets you concentrate on your core business.



### STATE OF THE ART GLOBAL CALIBRATIONS

FOSS has developed truly global calibrations using data collected from different corners of the world. A special implementation of Artificial Neural Networks (ANN) enables the creation of large calibration models covering a wide measurement range of multiple products from different geographical origins. The calibrations are regularly updated with new data to cover new harvests, new raw materials and new geographical origins.



### ANN TECHNOLOGY

ANN is the ideal technology for generating robust NIR calibrations and is particularly suitable for complex applications such as feed, pet food and forage. ANN features include:

- Improved accuracy of up to 10 - 15% compared to PLS calibrations
- Fewer calibrations needed to cover a wide range of products and raw materials
- Increased robustness and less work in adjusting and updating calibrations
- Calibrations can be used from day one with only minor adjustments
- Easier transferability between instruments



### FACTORY STANDARDISED INSTRUMENTS

The latest FOSS NIR technology ensures the seamless transfer of calibrations, thereby reducing development costs to a minimum. Instruments are matched with great precision through basic hardware standardisations. This removes the need for time consuming standardisation processes involving biological samples.





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**“The more we develop internationally,  
the more important it becomes for us to have  
a solution like RINA”**

**Albert Swinkels, MasterLab, the Netherlands\***

# Patented techniques for accurate, safe and reliable laboratory testing

In the field of wet chemistry, FOSS provides solutions designed to simplify routine laboratory analysis. Our radically improved Kjeldahl, Soxhlet, Weende and van Soest wet chemistry reference methods meet the most exacting standards and dramatically reduce laboratory time and costs.



## Fibertec Systems™

Fibertec systems are a range of fibre determination instruments that meet recognised methods and standards for crude fibre, detergent fibre and dietary fibre determinations.



## Kjeltec System™

Instruments in the Kjeltec 8000 series are renowned for their accuracy and cost-effectiveness providing simple and safe distillations with different levels of automation. Key features include easy data handling for reporting and traceability.



## Soxtec Systems™

Soxtec systems offer fast and safe analysis of extractable matter. Developed to meet recognised standard methods, all instruments in this range are built according to strict standards for maximum safety.



## Tecator Digestion Systems™

Tecator Digestion systems, with integrated programmable controllers, provide economical and efficient digestion for Kjeldahl analysis. A number of units can be combined to match individual needs, from units capable of handling just a few samples a day up to fully automated systems for high sample throughput.



## Sample preparation

FOSS provides tailored sample preparation equipment for all types of samples analysed in the feed production chain, such as raw material, forage samples and finished pelleted feed.



*Automated analysis can play an important role in fulfilling our goals. Of course, we demand that the automated solution must be comparable to the traditional method.*

*Mr Takahito Nakasato, Japan Food Research Laboratories\**



## **Chemical analysis meeting worldwide standards**

FOSS works closely with recognised official and regulatory bodies such as ISO and AOAC to ensure that our systems closely follow official methods and regulations. This means you can benefit from:

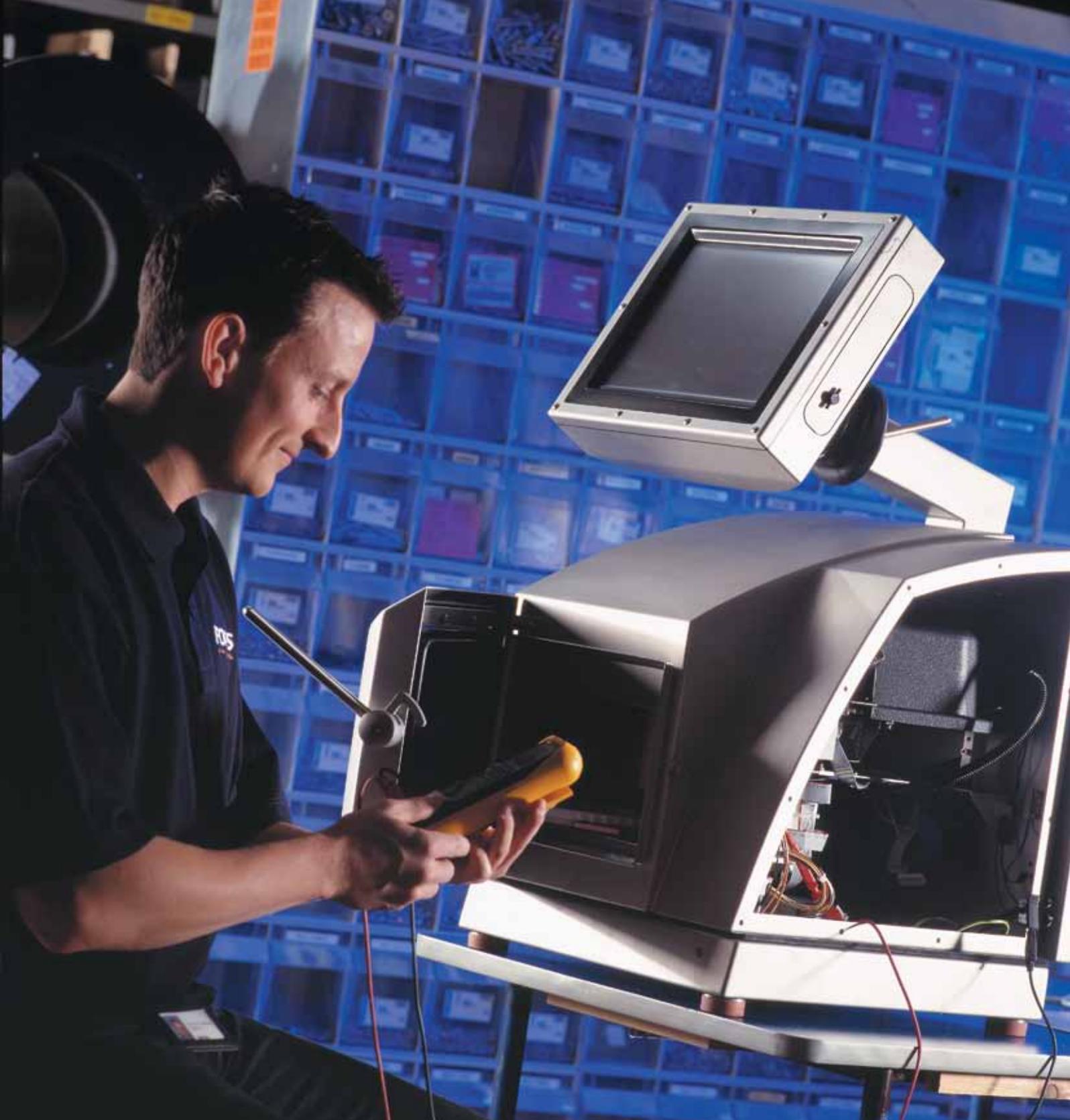
- Results that are valid on a worldwide basis
- Reduction in time spent validating the application
- Accurate results on a wide range of samples with robust methods
- Ability to use the collaborative study data for your measurement uncertainty values

# FOSS support – a level of service to match our products

FOSS is not just renowned for our world-class products and analysis systems, we are also consistently chosen for our after-sales support and global presence.

We offer a fully customised package with the support you need to keep your instruments functioning optimally. Our support services cover all phases of a ownership and include:





*“We chose FOSS due to their technical background. If someone is not there one day, we know that others will help. They are highly skilled and have a big back office to support us”*

*Lise Andersen, Aarhusegnens Andel, Denmark\**





Over 90 of the world's top 100  
food and agricultural companies  
use FOSS solutions

# About FOSS

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

Our solutions are based on indirect and reference methods to provide analysis and control throughout the production process from raw material to finished product with routine analysis, at-line and in-line process control. In short, FOSS solutions give you the accurate information you need to optimise quality and profit.

FOSS is a privately-owned company with a global team of 1 100 employees and manufacturing and R&D facilities in Denmark, Sweden and the USA. Our solutions are sold and supported through FOSS sales and service companies in 25 countries and by more than 75 dedicated distributors.

Contact FOSS to find out how we can help you achieve more efficient and profitable feed and forage production, or visit our website at [www.foss.dk](http://www.foss.dk).

## FOSS

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