TECHNICAL TOUR 1 – JOINT EVENT WITH NMR

ICAR 2017 UK CONFERENCE, EDINBURGH, SCOTLAND
16 JUNE 2017

Andy Carr, FOSS UK & Ireland
The 'top 100' companies in food and agriculture use FOSS solutions. 80% of the world's milk is tested by a FOSS solution. More than 40,000 customers worldwide use a FOSS solution for chemical analysis work. More than 80% of grain traded on the world market is analysed with a FOSS solution.
In 2030 we have a global middle class of 4.9 billion demanding quality food.
Increasing demand for food of consistent and safe quality

+9 billion
World population will continue to grow in size

+4.9 billion
The global middle class will more than double – from today’s 2 billion to 4.9 billion
We provide world class analytics and information management solutions improving quality and optimising food and agricultural production – and contribute to the sustainable use of our planet’s agricultural resources and thus to the nutrition and health of the people of the world

OUR VISION

• Superior customer experience
• Profitable growth
• Pride in what we do
Improved predictability and control of manufacturing processes

Safe products and compliance with regulatory requirements

Raw material
Payment, segregation and quality control of raw material

Processing

Finished goods

On-farm Receiving points At-line/In-line production Quality Control Laboratories Finished products

INTELLIGENCE DATA INFORMATION INTEGRATION CONTROL & AUTOMATION
A HISTORY OF PIONEERING INVENTIONS

In 1956, Nils Foss identified the need for a portable moisture analyser. Fast, easy-to-use and dedicated, the Cera-Tester was the first FOSS innovation. Matching innovative technology to the demands of particular industries has been the foundation of FOSS ever since.

1956
Cera Tester monitors moisture content in grain. The instrument is a highly popular world first.

1963
Milk becomes a major business area, and the Pro Milk helps to speed-up the analysis of fat content in milk.

1973
The Tecator Kjeltec™ paves the road for simpler, safer, less time-consuming and more cost-efficient Kjeldahl analysis.

1980
Flow Cytometry for analysis of individual bacteria or somatic cells leads to dramatic improvements in raw milk quality.

1997
FOSS acquires Perstorp Analytical and improves consistency of analysis results throughout the grain industry via NIR.

1999
WineScan introduces FTIR analysis as an effective way of improving quality throughout the wine making process.

2003
Introduction of X-ray analysis of meat allows entire batches of meat to be checked for fat.

2014
First commercial use of EyeFoss for quality assessment of grain using image analysis to replace the age-old method of visual inspection.

2015
MilkoScan Mars makes screening for milk adulteration available to any size of business, along with other quality tests.

2016
FOSS achieves record growth with revenue of 269 million EUR.

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FOSS achieves record growth with revenue of 269 million EUR.
FIRST
because we want to be first and best

CUSTOMER SATISFACTION
because the customer (of course!) is the focus of FOSS

KNOWLEDGE
because FOSS exceedingly is a company based on knowledge

PEOPLE AND TEAMS
because our employees in co-operation are the basis of FOSS’ success
MORE THAN 60 YEARS OF INNOVATION

- Strive to bring the advantages of new technology to our customers first
- More than 10% of turnover invested in R&D
- More than 300 highly skilled engineers and scientists in R&D
- Partnership with leading international universities
- Tightly woven network of technology partners
- Customer driven innovation

FOSS INNOVATION FACTS
- More than 100 patents
- More than 20 world first introductions
- First to integrate analysis directly in line
CORE TECHNOLOGIES

- NIR
- FT-IR
- X-RAY
- IMAGE ANALYSIS
- FLOW CYTOMETRY
- CHEMOMETRICS
<table>
<thead>
<tr>
<th>Key Figures</th>
<th>Description</th>
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<tr>
<td>100%</td>
<td>A 100% family-owned company – HQ in Hilleroed, Denmark</td>
</tr>
<tr>
<td>98%</td>
<td>98% of turnover outside Denmark</td>
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<tr>
<td>AAA</td>
<td>AAA-rated by D&amp;B</td>
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<tr>
<td>23%</td>
<td>EBITA of 23% of turnover</td>
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<tr>
<td>60%</td>
<td>Solvency ratio 60%</td>
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GLOBAL PRESENCE

FOSS Companies
FOSS Distributors
FOSS RDM Centres
FOSS’ WORLD-WIDE COMMITMENT

Quality

HR & Comm.

Corporate Mgmt.

IT

Finance

> 250 employees

Research & Development

Denmark
China
Russia
Hungary

> 300 employees

Production & Supply Chain

Denmark
China

> 300 employees

Sales & Marketing

30 countries
Distributors in 50+
countries

> 250 employees

Customer & Sales Support

30 countries
Distributors in 50+
countries

> 350 employees
FOSS signed the UN Global Compact in 2012 and follows the ten global principles. Our annual CSR report details our performance and goals in the areas of:

- Human Rights
- Labour
- Environment
- Anti-Corruption
FUTURE STARTING NOW

ANALYTICS BEYOND MEASURE

= data

= market leader

= intelligent information

= more than just data and calibration
• “We need to provide dairy farmers with more information for improved decision making through DHI testing.”

• Mastitis: Differential Somatic Cell Count (DSCC)
Multifactorial disease

*- Wellenberg et al., 2002, ** Seegers et al., 2003, *** Viguier et al., 2009

**€32 billion** annually*

Losses are due to subclinical mastitis**

Somatic cell counts (SCC) and bacteriology are standard***

Major need for new biomarkers***
<table>
<thead>
<tr>
<th>Project</th>
<th>Objective</th>
<th>Status</th>
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<tr>
<td>Denmark</td>
<td>Longitudinal study to develop general guidelines for application of DSCC in practise</td>
<td>In progress</td>
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More to be done with Mastitis: The challenge and the potential

Differential Somatic Cell Count with the Fossomatic 7 DC - a novel parameter
By: Dr. Daniel Schwarz, Cattle Disease Specialist, FOSS, Denmark

Differential somatic cell count—A novel method for routine mastitis screening in the frame of Dairy Herd Improvement testing programs
Malin Damm,† Claus Holm, Mette Blaabjerg, Morten Novak Bro, and Daniel Schwarz1,2
Foss Analytical A/S, Foss Allé 1, 3400 Hillerød, Denmark

Differential Somatic Cell Count (DSCC) – a rationale for the new parameter
By: Dr. Daniel Schwarz, Cattle Disease Specialist, FOSS, Denmark
Highly accurate, fast, reliable, repeatable, and robust determination of up to 19 parameters at low cost

New services to provide dairy farmers with better information:
- Mastitis: Various applications based on DSCC currently under validation
- Ketosis screening: well-accepted and valuable service in many countries
THANK YOU