

## Global Dairy Industry: Needs and Challenges

Taiwan 2 July 2013

Steen Kold-Christensen, International Market Manager, FOSS Denmark



Dedicated Analytical Solutions

## Agenda

### 1. DHI Global Trends

- FOSS track record
- Challenges in modern dairy farming
- Dairy Herd Improvement in Denmark and global perspective
- Benchmarking Denmark and Taiwan

### 2. Healthy Dairy Products

- Fatty Acids Profile for improved healthy dairy products
- Free Fatty Acids – for milk quality
- Future perspectives



Dedicated Analytical Solutions

## 1. DHI Global Trends

- FOSS track record
- Challenges in modern dairy farming
- Dairy Herd Improvement in Denmark and global perspective
- Benchmarking Denmark and Taiwan

## 2. Healthy Dairy Products

- Fatty Acids Profile for improved healthy dairy products
- Free Fatty Acids – for milk quality
- Future perspectives



Dedicated Analytical Solutions

# Proud Track Record – A common history

## FOSS' ongoing investment in new customer dedicated solutions:

- Since 1956 FOSS has explored new ways to improve milk analysis through innovative analytical solutions
- The CMT structure developed in symbiosis with FOSS since the early 60's
- FOSS' Commitment to innovation: Invest >10% of turnover in R&D
- FOSS employs 200 engineers and scientists
- Has always had ongoing development with customers and internationally recognized science centers
- Substantial investments and full commitment to protect and further develop our role as global market leader



*In the 1970's FOSS took the first jump into milk quality. Today SCC is synonym with milk productivity & milk quality*

Dedicated Analytical Solutions

**FOSS invented:**

- InfraRed for compositional milk analysis
- Developed MIR into FTIR
- Automated somatic cell counting
- Rapid & automated IBC

**Recognized product brands:**

- MilkoScan, milk composition
- Fossomatic, somatic cell counting
- BactoScan, individual bacteria counting

**FOSS first on applications / calibrations for:**

- Urea ( patented)
- FPD (patented)
- Fat B (patented)
- Standardization (patented)
- Dynamic precision (patented)
- Casein
- Free Fatty Acids (FFA)
- Fatty Acids profile (FA)
- Acetone/BHB - for ketosis (patented)
- Abnormal spectrum screening

*All developed in close co-operation with international science centers & our customers!*

Dedicated Analytical Solutions

**FOSS: Global market leader**

- FOSS has CMT solutions in operation in more than 80 countries
- More than 2200 MilkoScan have been sold world wide (many generations)
- More than 2500 Fossomatics have been sold world wide (many generations)
- More than 1000 BactoScans have been sold world wide (3 generations)
- FOSS CMT solutions
  - are in compliance with IDF/ ISO/ ICAR standards
  - fulfill all EU directives
  - have obtained many national approvals: DE, FR, IT, ES, BE, US (Food & Drug Administration/NCIMS) and many more



Dedicated Analytical Solutions

## 1. DHI Global Trends

- FOSS track record
- Challenges in modern dairy farming
- Dairy Herd Improvement in Denmark and global perspective
- Benchmarking Denmark and Taiwan

## 2. Healthy Dairy Products

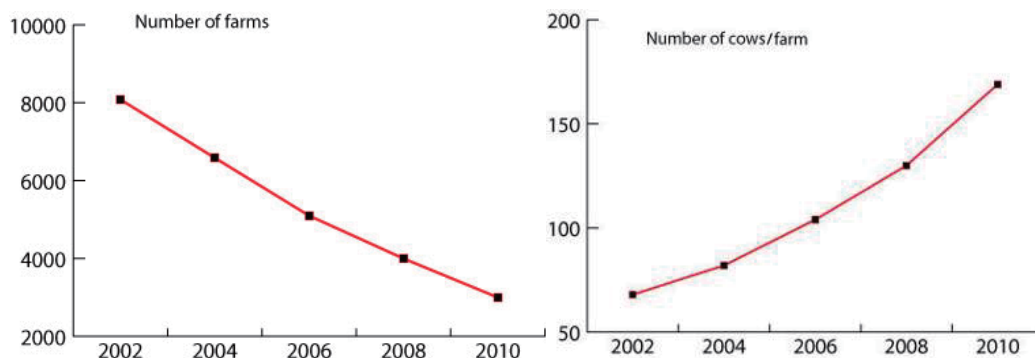
- Fatty Acids Profile for improved healthy dairy products
- Free Fatty Acids – for milk quality
- Future perspectives



Dedicated Analytical Solutions

# Challenges in modern dairy farming

- Staying profitable
  - in spite of declining milk prices
- Ensuring professional and cost-effective farm operation
  - in spite of shortage of qualified labor
- Increasing productivity
  - in spite of stricter demands concerning animal welfare & environmental issues
- Intense consolidation: fewer and much larger farms



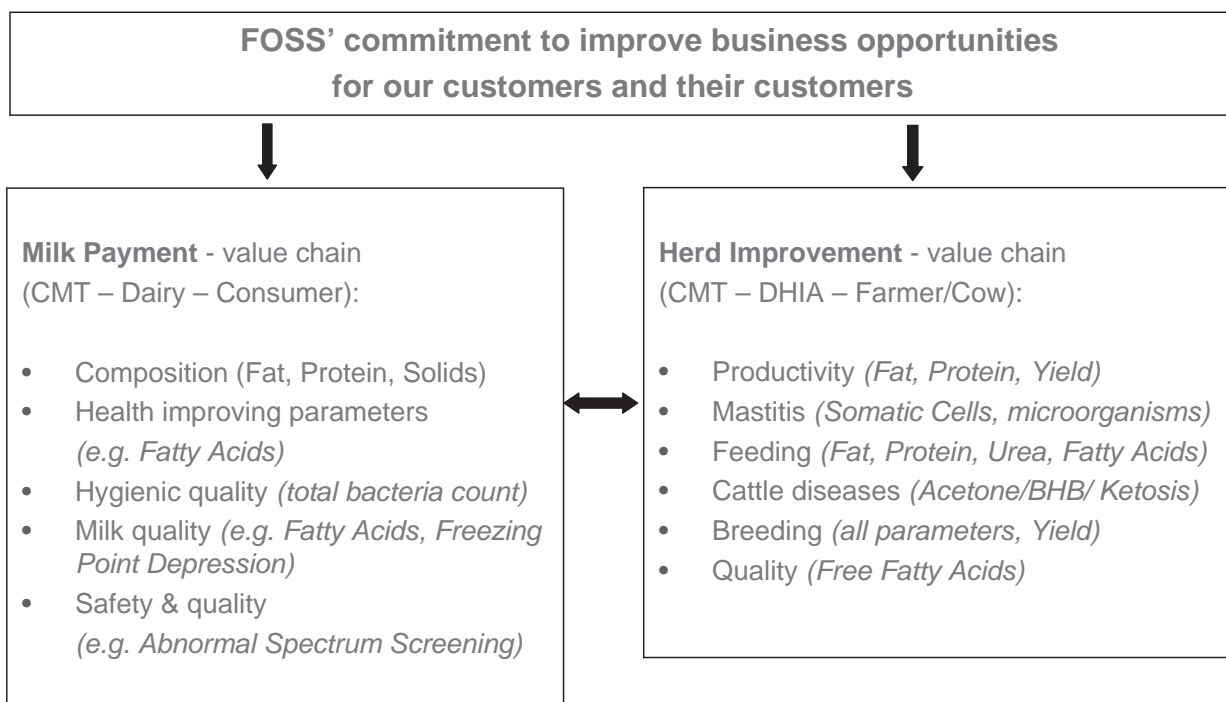
Source: Danish Cattle Federation

Dedicated Analytical Solutions

- Sourcing milk at competitive prices
- Maintaining consumer loyalty and global brand protection through consistent product quality
- Obtaining better margins than competitors through tight production control and cost savings
- Development of new products with competitive edge
- Under pressure from retailers
- Low prices on milk and milk products
- Consolidation



Dedicated Analytical Solutions



Dedicated Analytical Solutions

1. DHI Global Trends

- FOSS track record
- Challenges in modern dairy farming
- Dairy Herd Improvement in Denmark and global perspective
- Benchmarking Denmark and Taiwan

2. Healthy Dairy Products

- Fatty Acids Profile for improved healthy dairy products
- Free Fatty Acids – for milk quality
- Future perspectives



Dedicated Analytical Solutions

Dairy Herd Improvement



Dairy Herd Improvement Association services

**Tools**

- Herd books
- Monthly recording of individual cow data
  - Yield
  - Fat, protein, urea, somatic cells
  - Health, insemination, calving
  - Testing typically once a month

**Activities**

- Advisory services to farmers
- Farm management services
- Breeding programmes
- Mastitis programmes

Effect of Dairy Herd Improvement

Dedicated Analytical Solutions

# Effect of DHI programmes

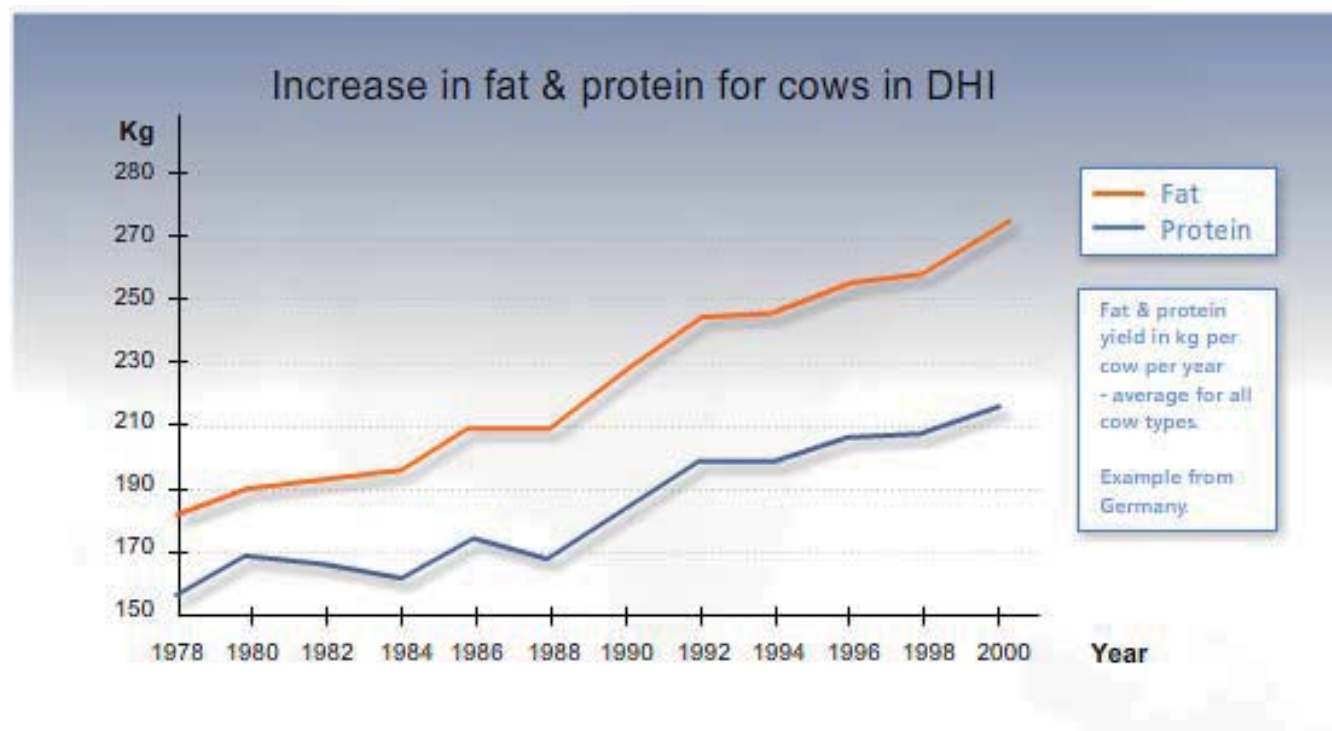
Country	No. of dairy cows	No. of herds	Average cows per herd	Average milk production per cow per year (kg)	% recorded cows in DHI	Milk yield per recorded cow per year (kg)
Australia*	1,700,000	7,953	214	5,414	46%	6,827
Austria	532,735	47,238	11	6,100	74%	6,841
Canada	981,000	13,214	74	8,642	72%	9,768
Chile	476,077	18,522	26	4,845	26%	8,013
Denmark	576,000	4,100	140	8,750	91%	9,079
Finland	287,200	10,920	26	8,349	79%	8,886
France	3,773,000	82,000	46	6,100	66%	8,221
Germany	4,181,679	91,550	45	7,113	84%	8,365
Korea	241,281	6,347	38	8,100	60%	9,500
India	40,000,000	-	< 5	< 1,000	< 0.01%	~ 2,500
Israel	101,393	671	151	11,667	91%	12,968
Japan*	985,200	22,300	44	8,011	58%	10,000
Mexico*	2,153,200	-	-	4,999	4%	-
New Zealand	4,396,675	11,691	376	3,759	64%	3,903
Poland	2,528,827	450,302	6	4,841	24%	7,000
South Africa	540,000	2,713	200	5,190	23%	6,417
USA	9,117,000	53,127	172	9,593	48%	10,218

\* 2008 figures, All others are 2010 figures Source: [ICAR 2011](#)

Dedicated Analytical Solutions

Taiwan				2,847	44%	6,185
--------	--	--	--	-------	-----	-------

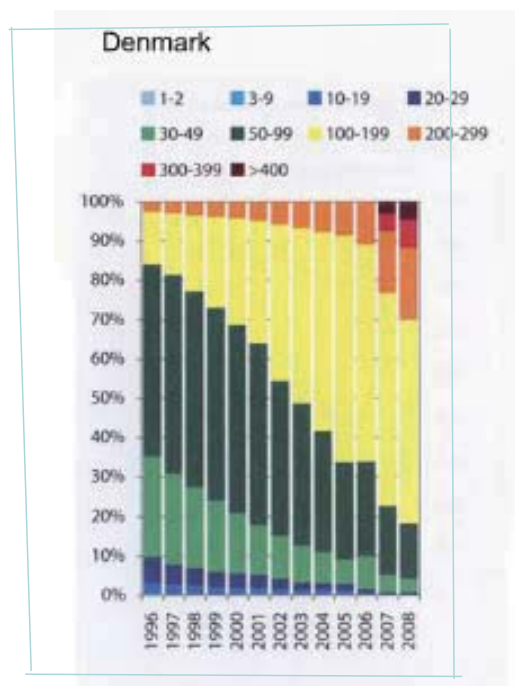
# Effect of DHI programmes –ex. Germany



## Latest figures from ICAR

	Denmark	Taiwan
Number recorded cows	531.541	26.227
Percentage recorded cows	88%	44%
Number farms	3.328	186
Number of cows per farm	156	141
Milk yield (kg)	9.019	6.185
Fat	4,30%	3,82%
Protein	3,46%	3,24%
No farms > 400.000 SCC	33	?
Recorded deceases per cow	1,8	?
Recorded no mastitis instances	0,5	?
B-control	90%	0%
A-control	10%	100%
6 recordings per year	11%	?

## Development in farm size 1996 -2010



Dedicated Analytical Solutions