

Dedicated Analytical Solutions

DIFFERENTIAL SOMATIC CELL COUNT – A NEW BIOMARKER FOR MASTITIS SCREENING

Dr. Daniel Schwarz, FOSS, Denmark



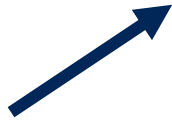
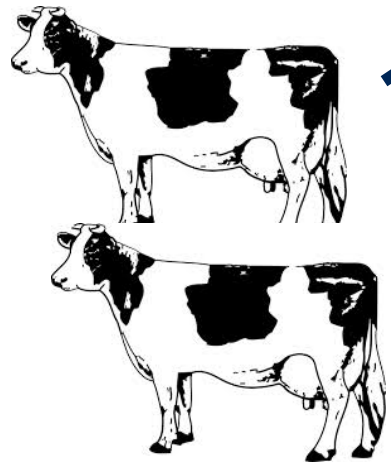
**SEMINARIO AIA Laboratori,
24 January 2017**

CENTRAL MILK TESTING

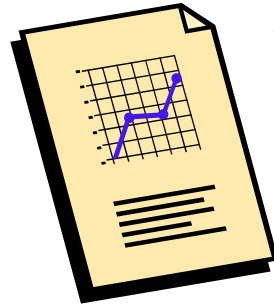
- ▶ Solutions in operation in 80+ countries
- ▶ 3,000+ MilkoScan™ sold (7 generations)
- ▶ 3,000+ Fossomatic™ sold (7 generations)
- ▶ 1,200+ BactoScan™ sold (3 generations)
- ▶ Solutions in compliance with international and national standards (e.g. IDF/ISO, EU, FDA/NCIMS)



DHI TESTING CHAIN



Milk-testing laboratory

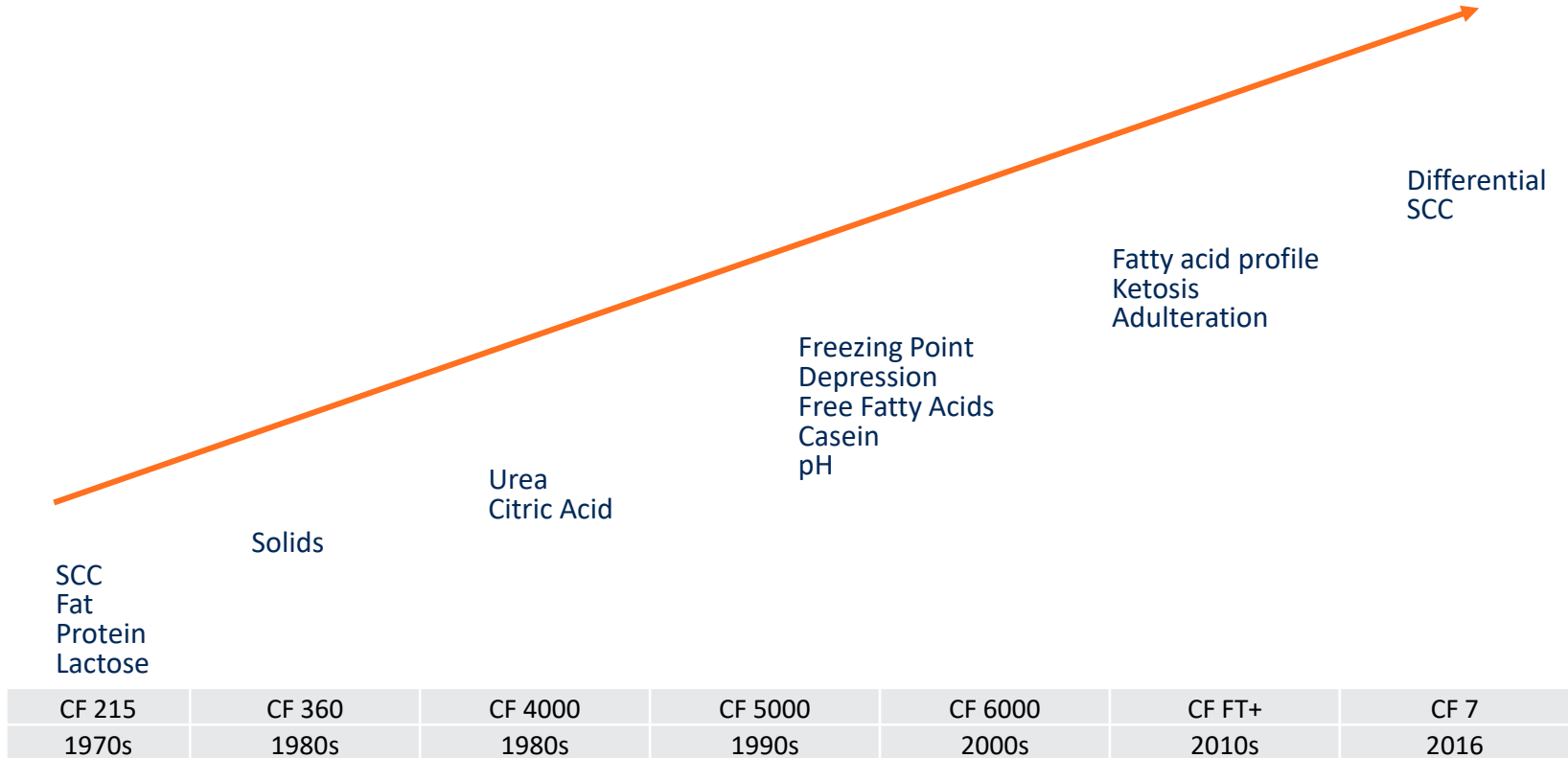


Dairy farm

THE NEW COMBIFOSS 7



7TH GENERATION COMBIFOSS



19 parameters in **6sec.**



- ✓ Citric Acid
- ✓ Urea
- ✓ Solids Non Fat
- ✓ Total Solids
- ✓ Lactose
- ✓ Casein
- ✓ Crude Protein
- ✓ True Protein
- ✓ Fat
- ✓ Diff. Somatic Cell Count
- ✓ Somatic Cell Count
- ✓ Adulteration
- ✓ BHB –Ketosis
- ✓ Acetone – Ketosis
- ✓ Fatty Acid Profile 2
- ✓ Fatty Acid profile 1
- ✓ PH
- ✓ FPD
- ✓ Free Fatty Acids

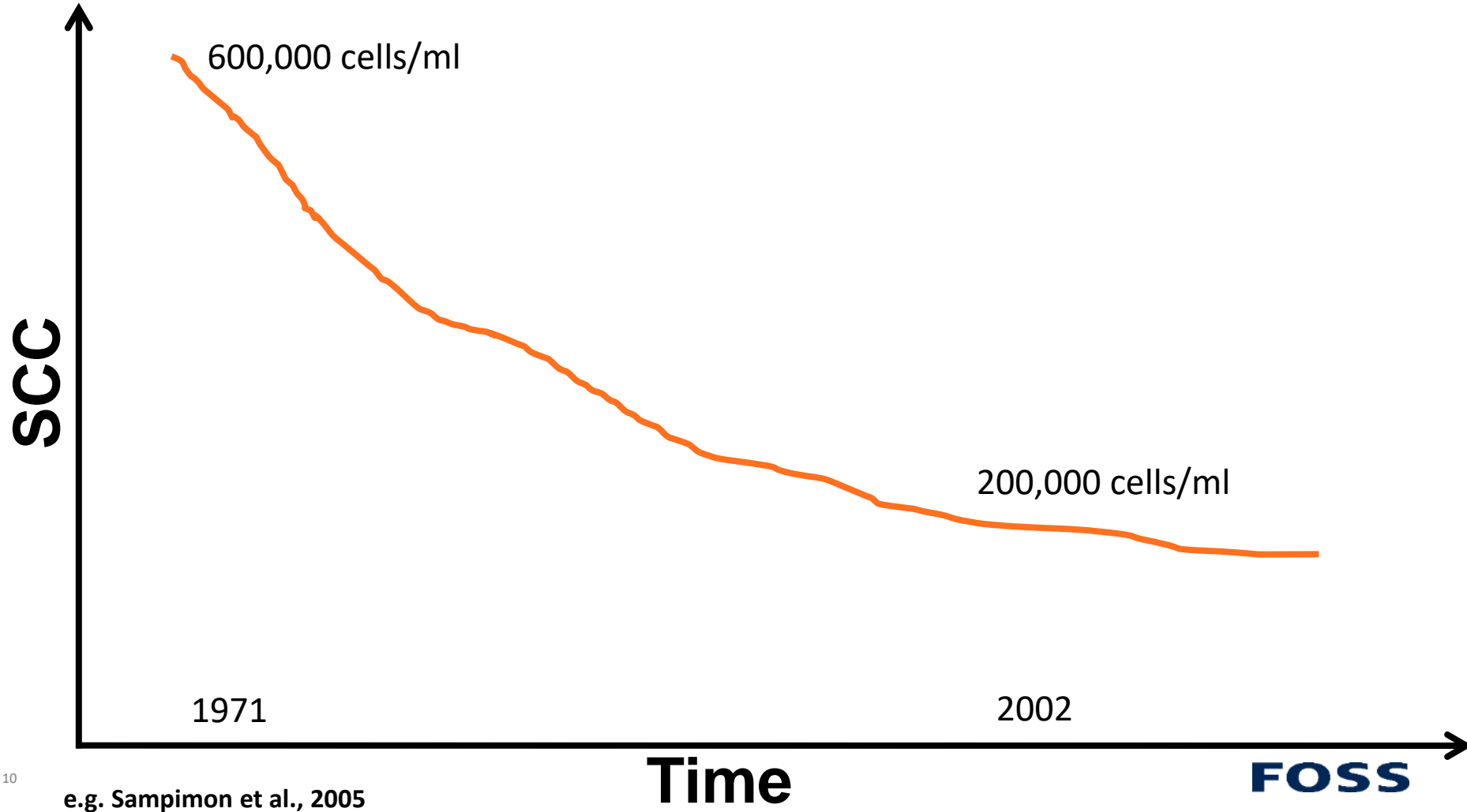
Differential Somatic Cell Count and Mastitis Screening

CLINICAL MASTITIS



SUBCLINICAL MASTITIS



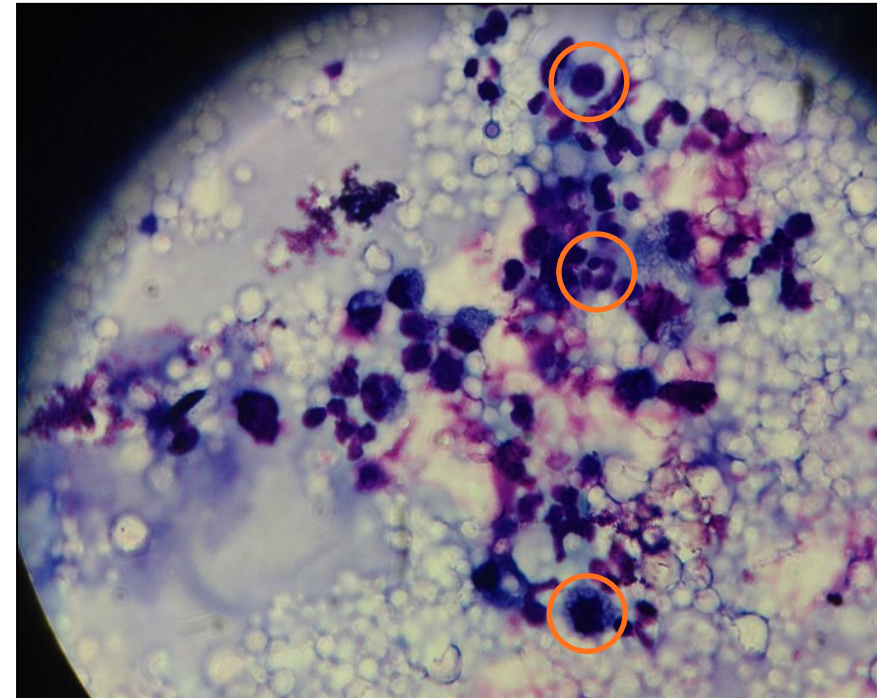


ECONOMICAL LOSSES

€32 billion annually

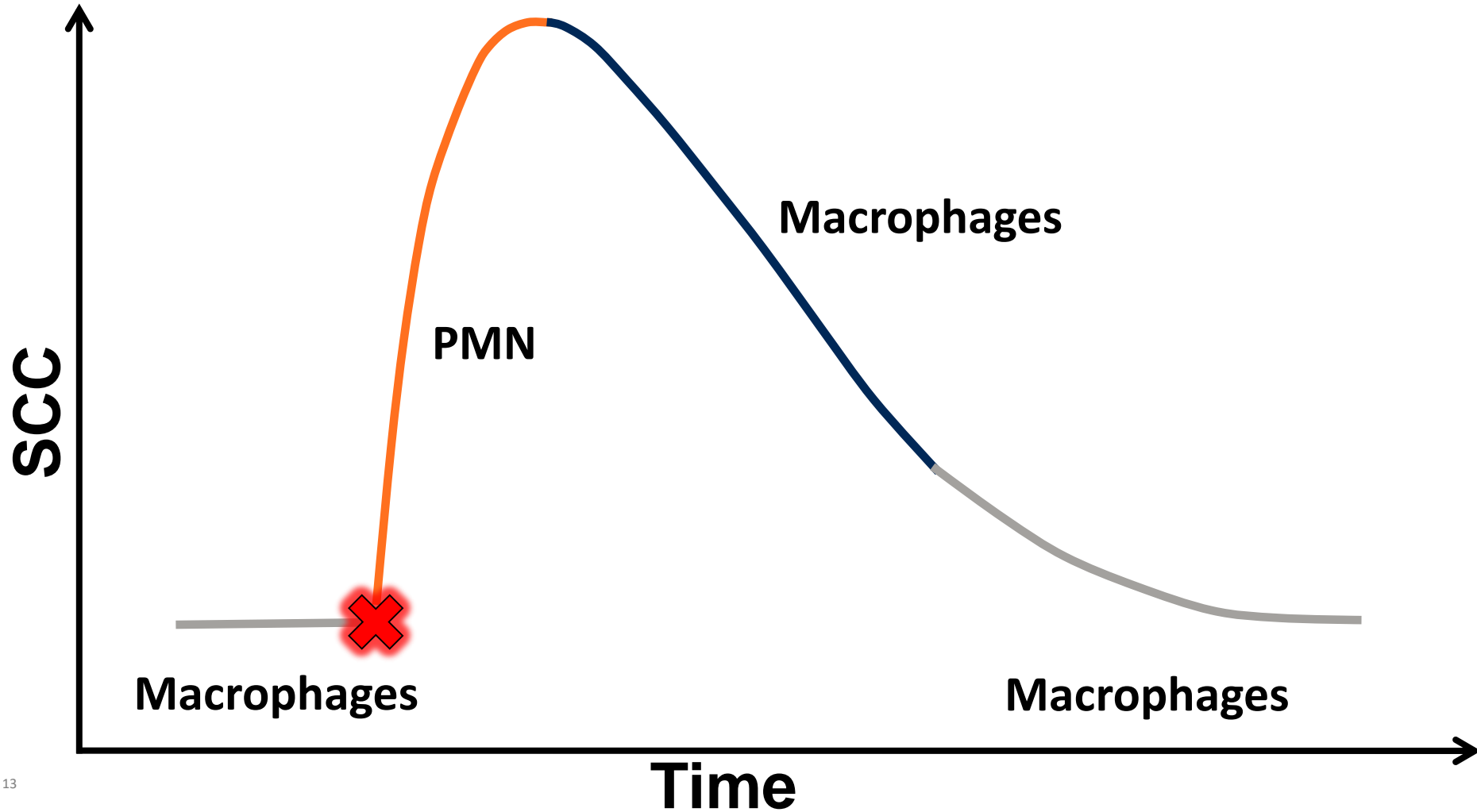


- 1. Lymphocytes**
- 2. Polymorphonuclear neutrophils (PMN)**
- 3. Macrophages**



Microscope spot, milk slide

MASTITIS CASCADE



THE NEW FOSSOMATIC 7 DC



THE FOSS DSCC METHOD

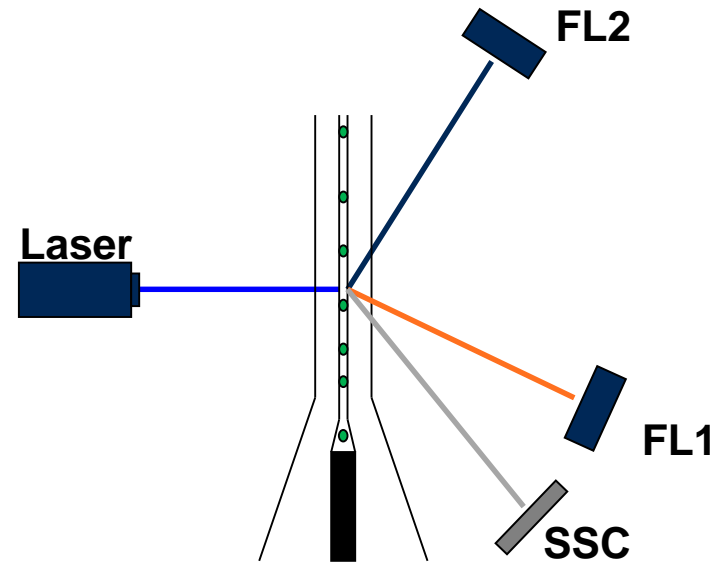
New chemistry



Incubation unit



New measuring unit

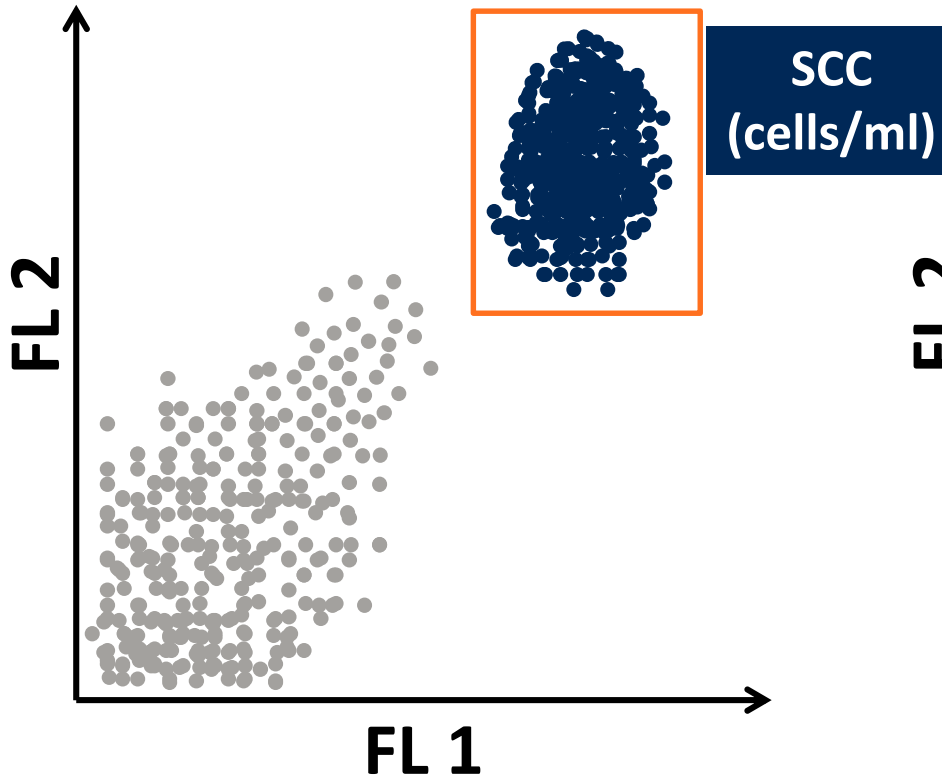


Patented technology

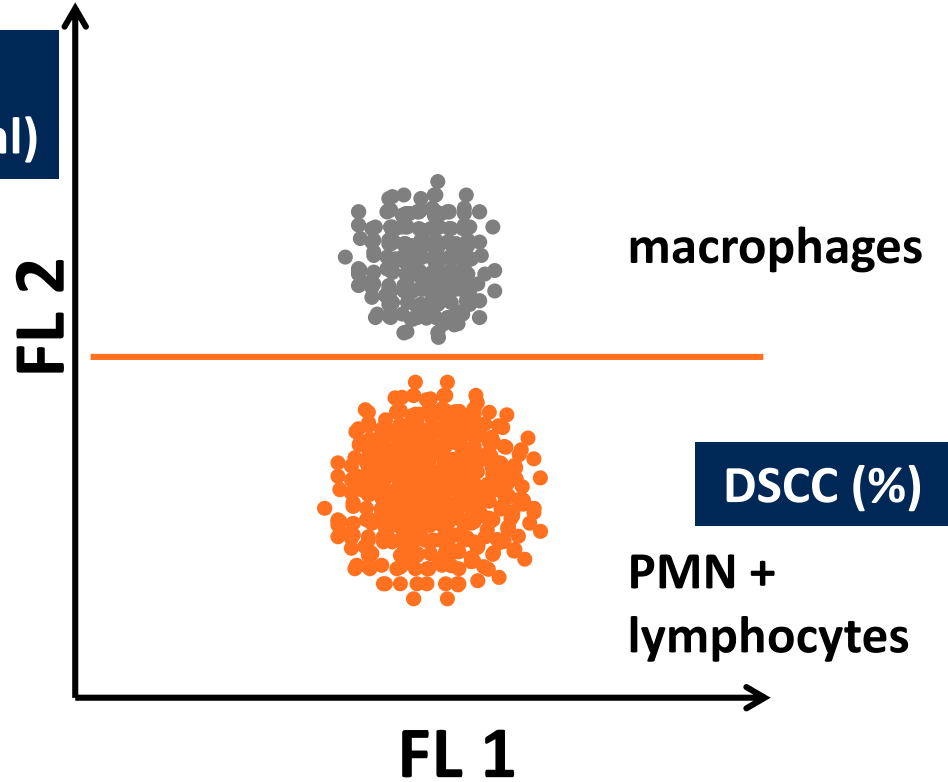
FOSS

THE FOSS DSCC METHOD

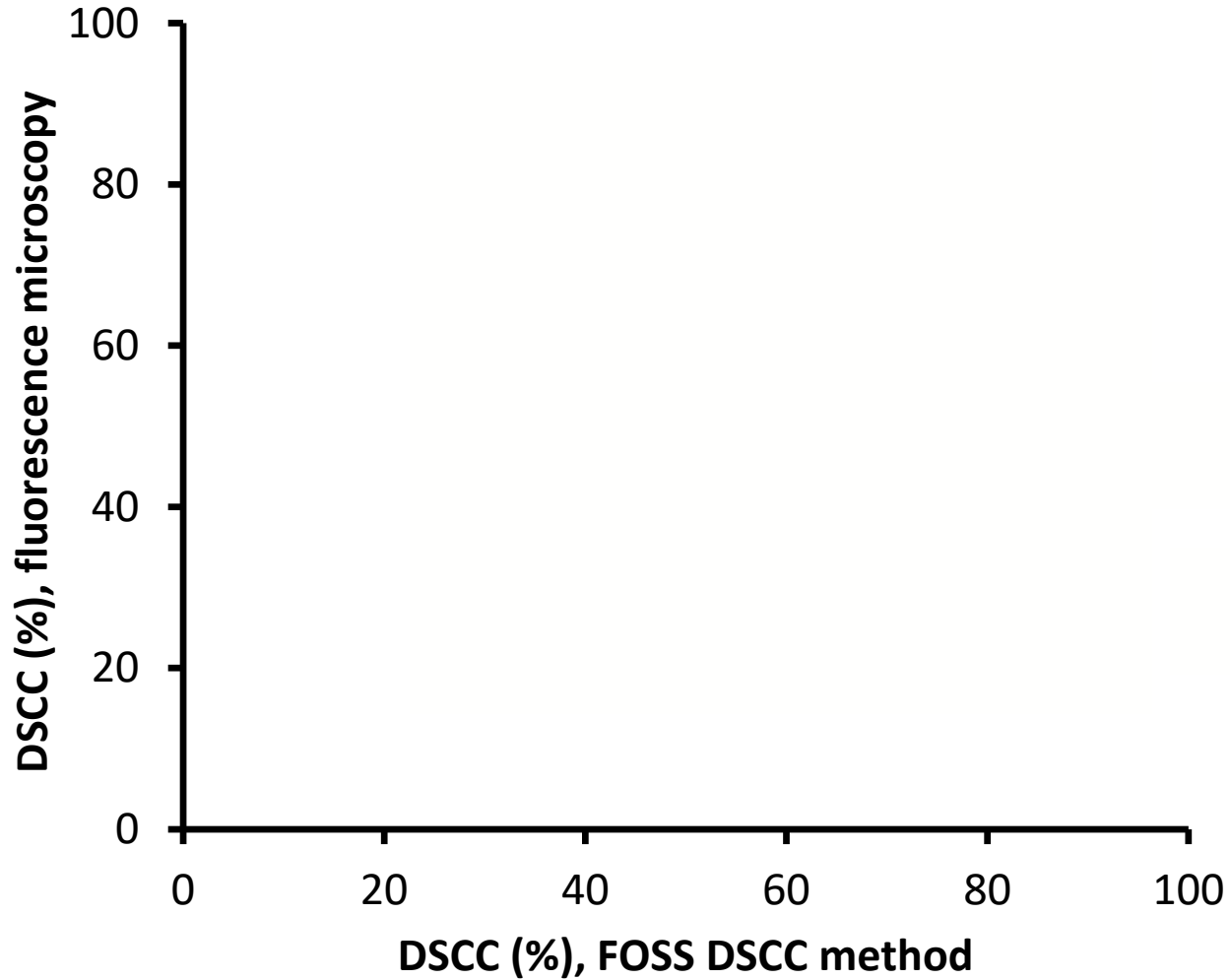
Analysis of SCC



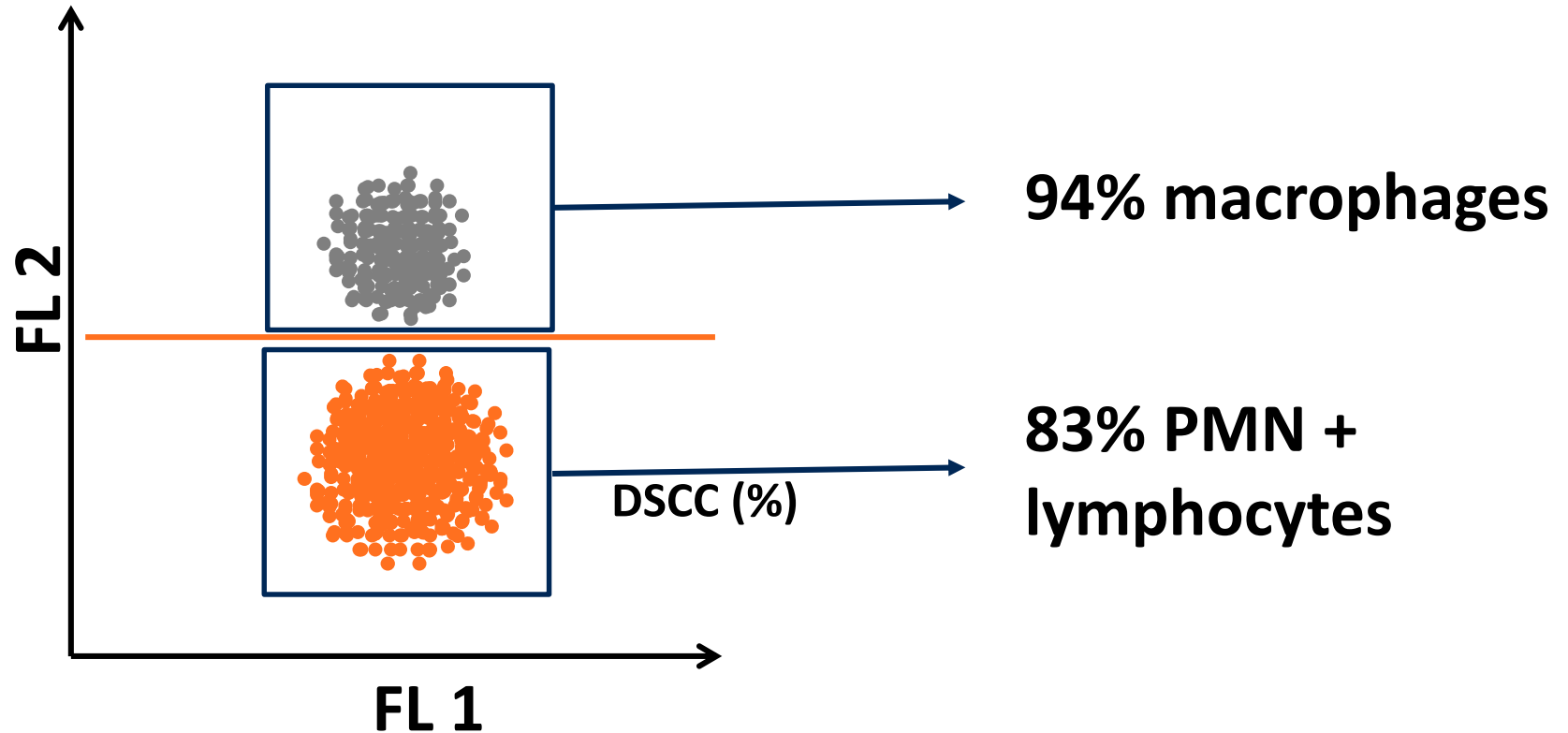
Analysis of DSCC



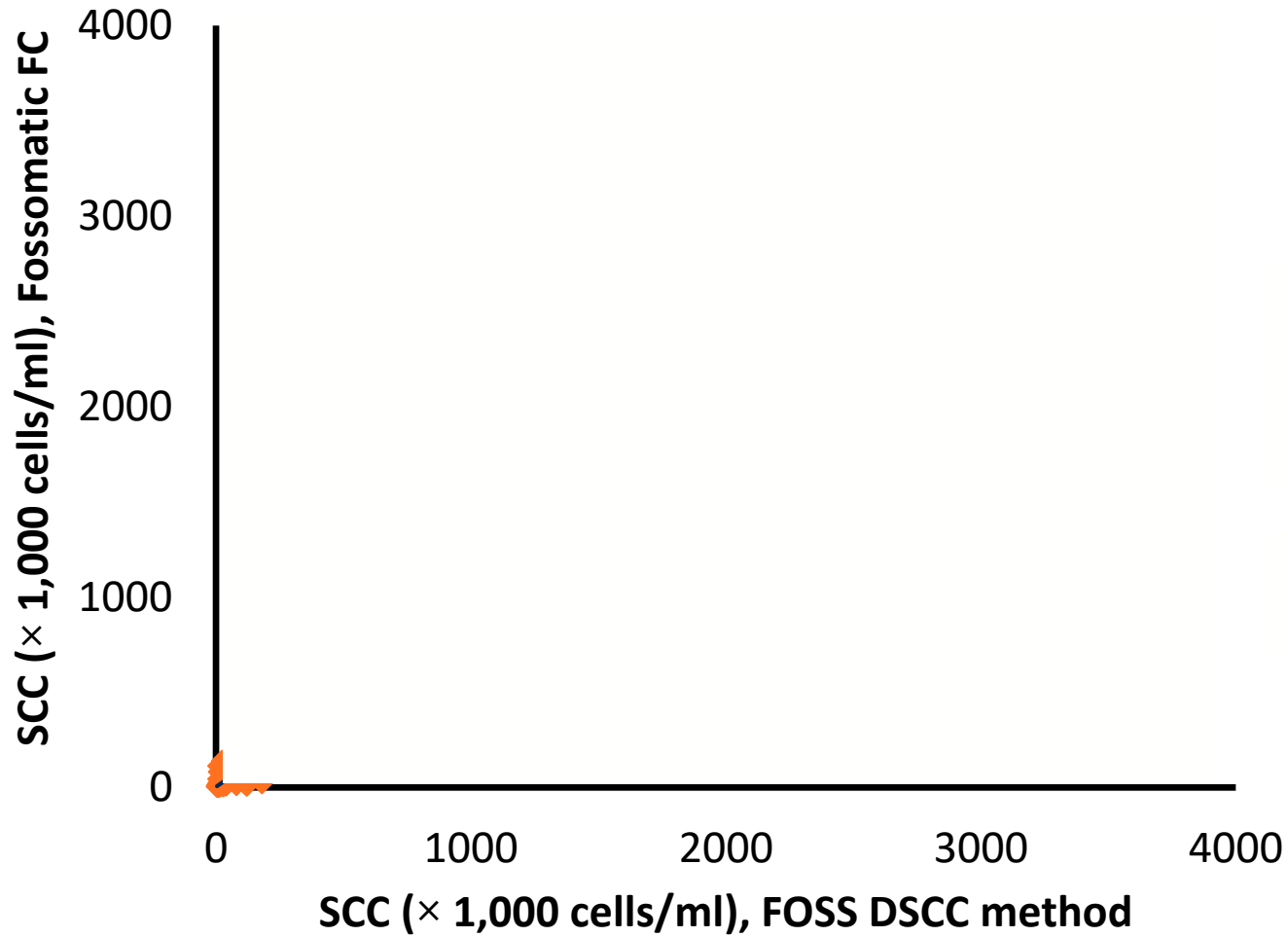
SPECIFICITY OF THE DSCC METHOD



Analysis of DSCC

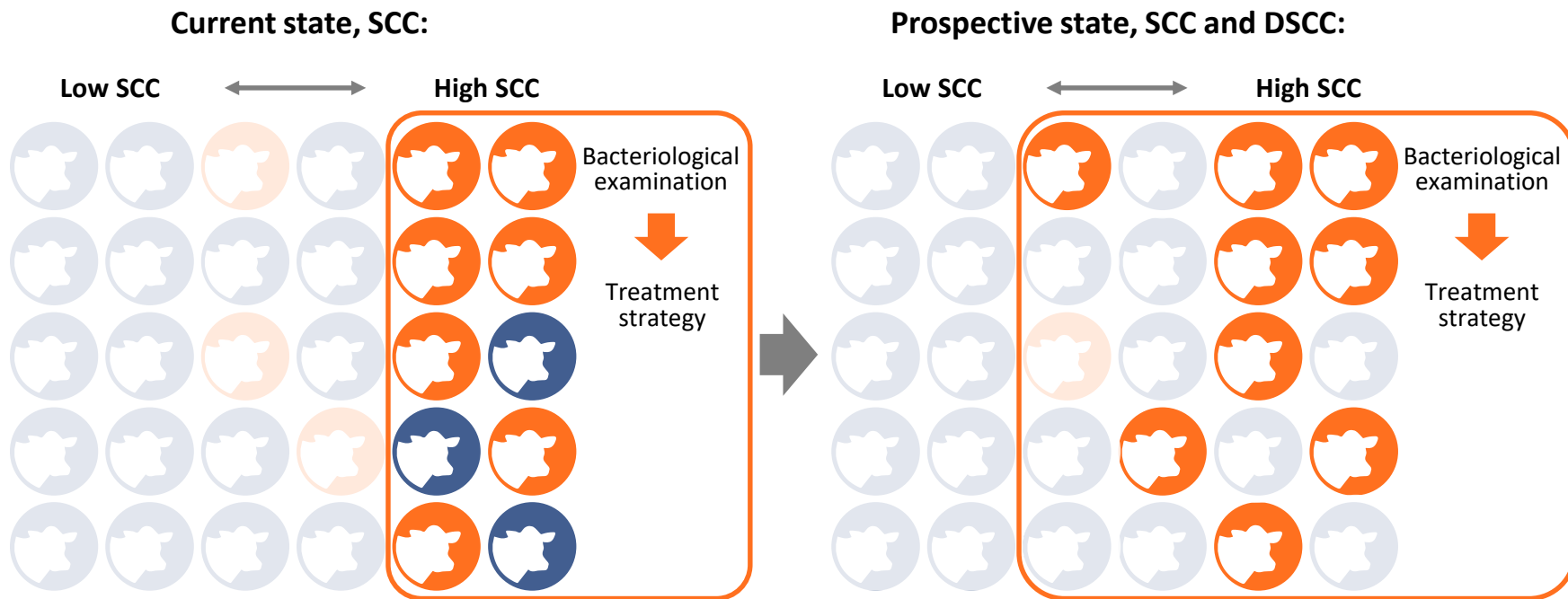


SCC REFERENCE



New business opportunities

Targeted selection of suspicious cows



IMPROVED BACTERIOLOGICAL EXAMINATION



- ▶ Targeted selection
- ▶ Better interpretation

IDEA

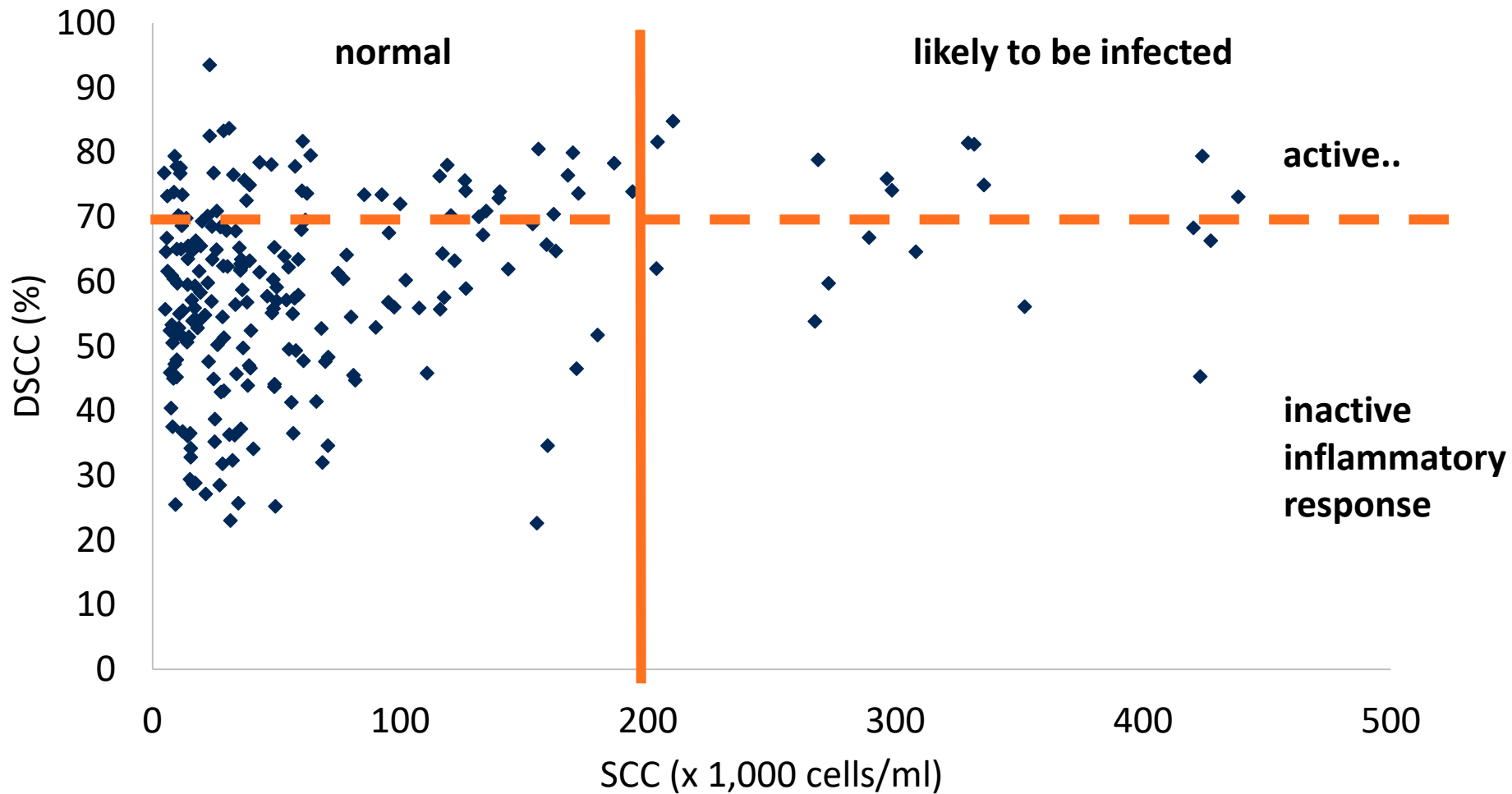
USE OF ANTIBIOTICS AT DRY OFF



IDEA

- ▶ Improved decision tool

EXAMPLE FOR DSCC DATASET



- ▶ 3-year projects in



- ▶ Microbiological testing
- ▶ Development of guidelines

MORE DSCC RESEARCH PROJECTS

Project	Objective	Status
University 1	DSCC before, during, and after artificial intramammary infection of cows under controlled conditions	Data analysis
University 2	Value of DSCC for selective dry cow therapy	Data analysis
DHI laboratory, North America	Investigation of correlation between DSCC and udder health status in a longitudinal study	Kick-off: March 2017
DHI laboratory, North America	DSCC for enhanced analysis of udder health in fresh lactating cows	Kick-off: March 2017
DHI laboratory, Europe	DSCC as parameter for improved microbiological testing	Kick-off: May 2017
DHI laboratory & universities, Europe	DSCC as indicator for prediction of the recovery phase after mastitis	Kick-off: October 2017

A MESSAGE TO TAKE HOME



- ▶ First high-throughput analyser for DSCC
- ▶ $\text{DSCC (\%)} = \text{PMN} + \text{lymphocytes}$
- ▶ More information on actual inflammatory status
- ▶ New possibilities to further tackle mastitis

