

On-line SCC Analyser

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CellSense[®]
SCC Sensor

LIC

The background image shows a complex industrial system with various pipes, valves, and a sensor. A blue plastic fitting is connected to a pipe, and a black cable is plugged into a sensor unit. The sensor unit is labeled 'CellSense' and 'LIC'.

Introduction to CellSense®

How good is CellSense?

ICAR SCC accuracy limits

INSTEAD OF RISKING ANYTHING NEW,
LET'S PLAY IT SAFE BY CONTINUING OUR
SLOW DECLINE INTO OBSOLESCENCE.



CellSense

Released 2005

3,292 sensors sold

4 countries

Lely MQC-C

Released 2012

>12,000 sensors sold

Worldwide

CellSense
SCC Sensor

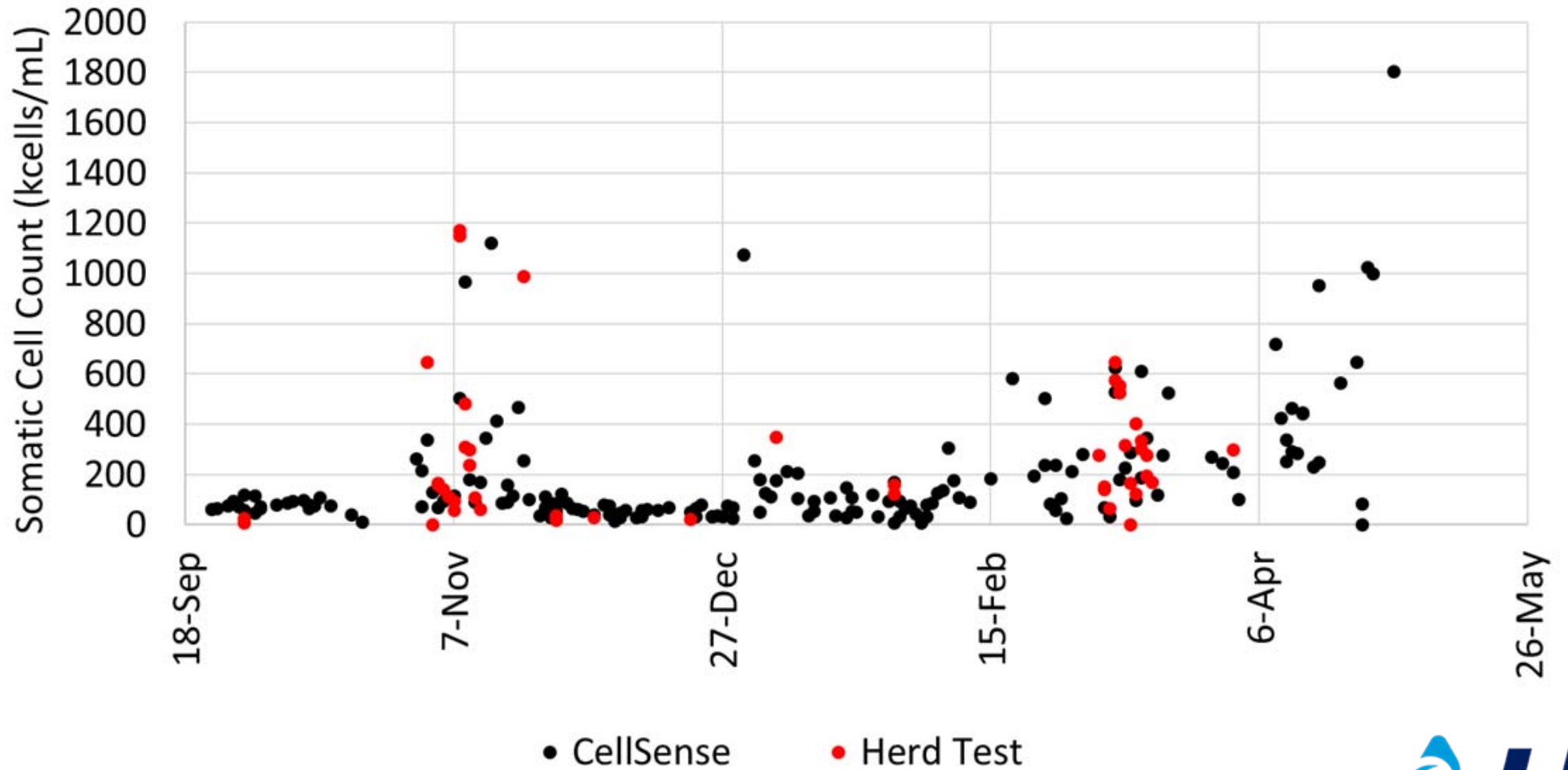
LIC

CellSense

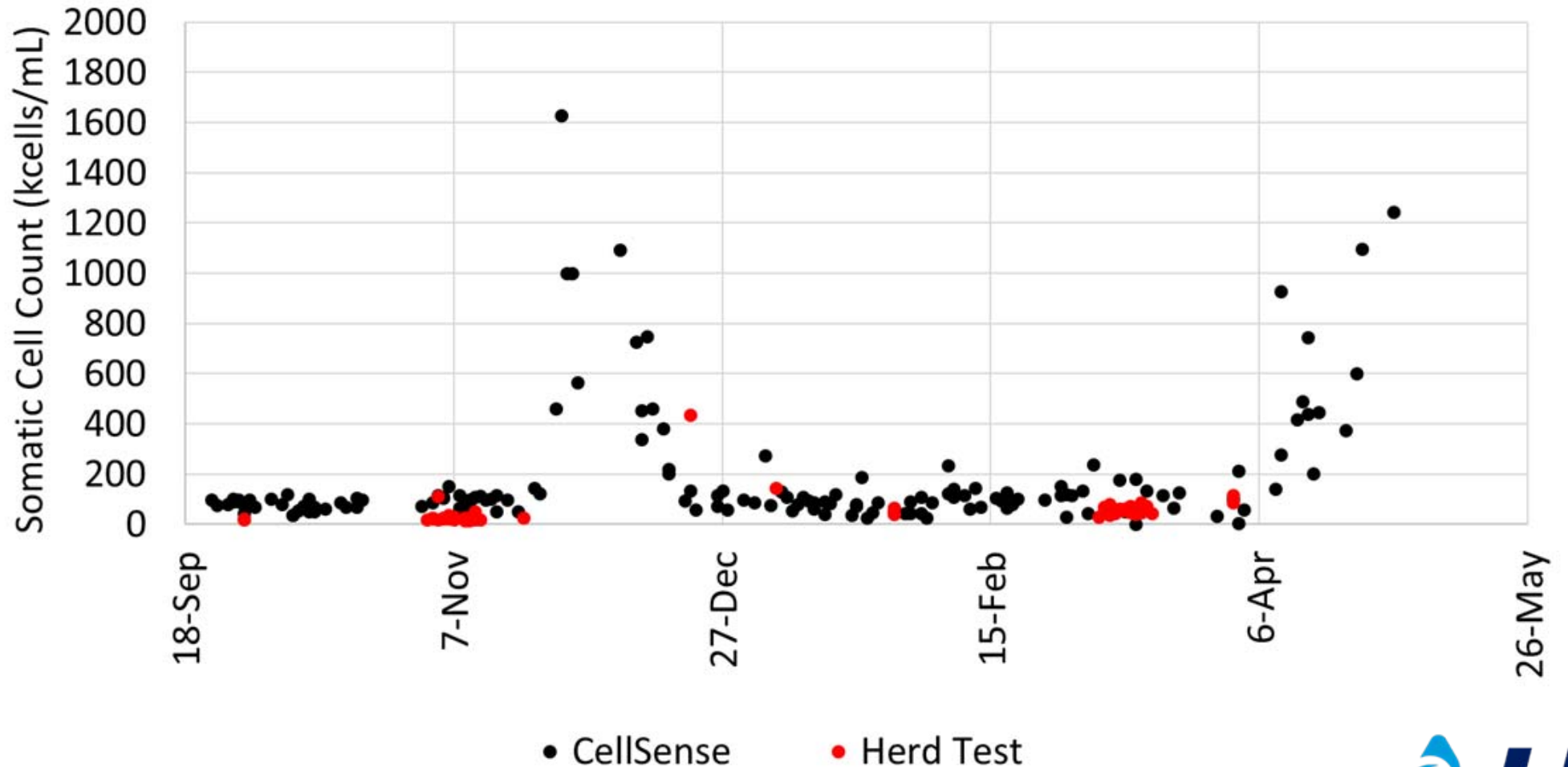
1-mL milk sample
30-60 seconds into milking

Automated
'California mastitis test'

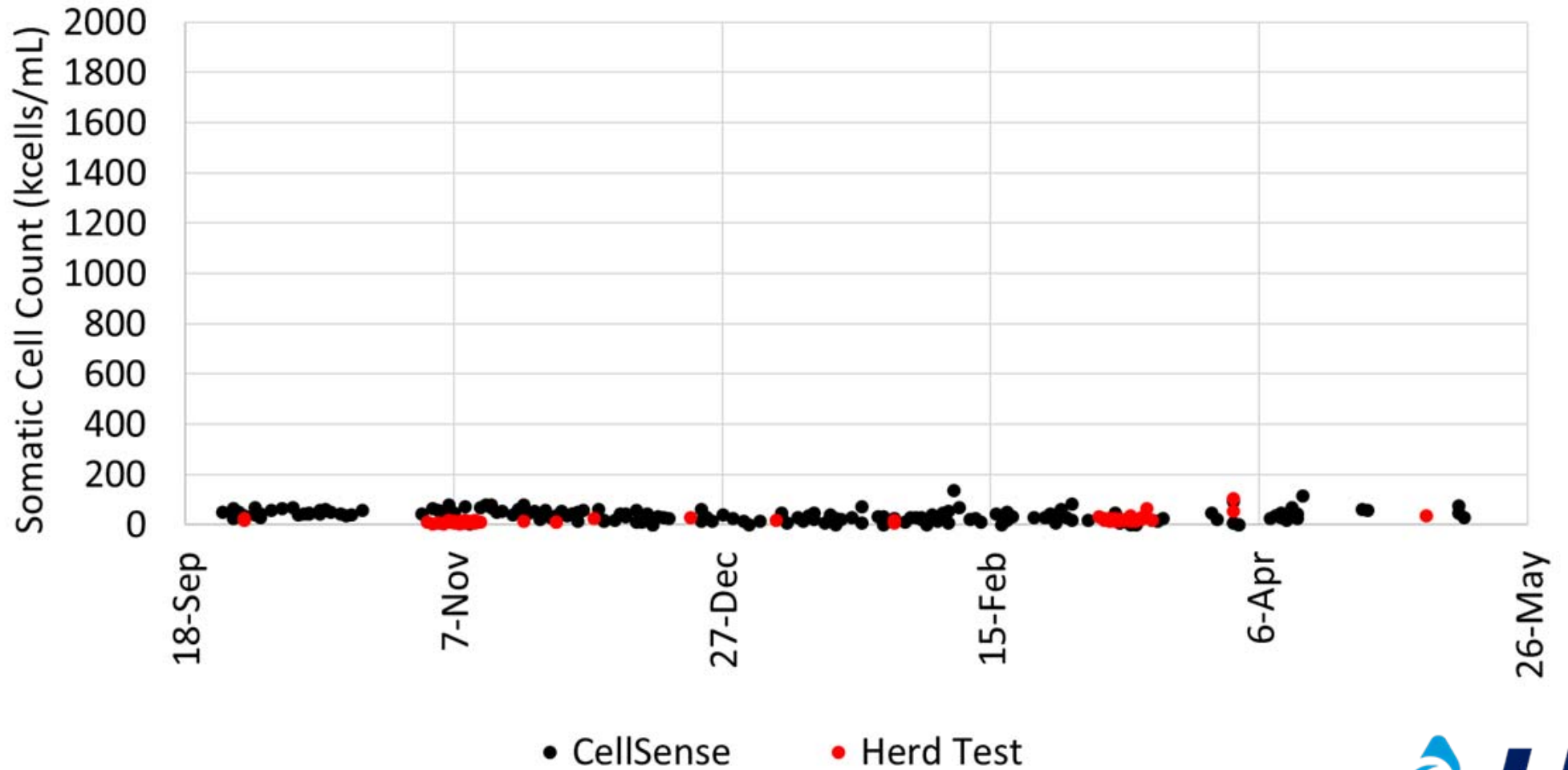
Cow 257



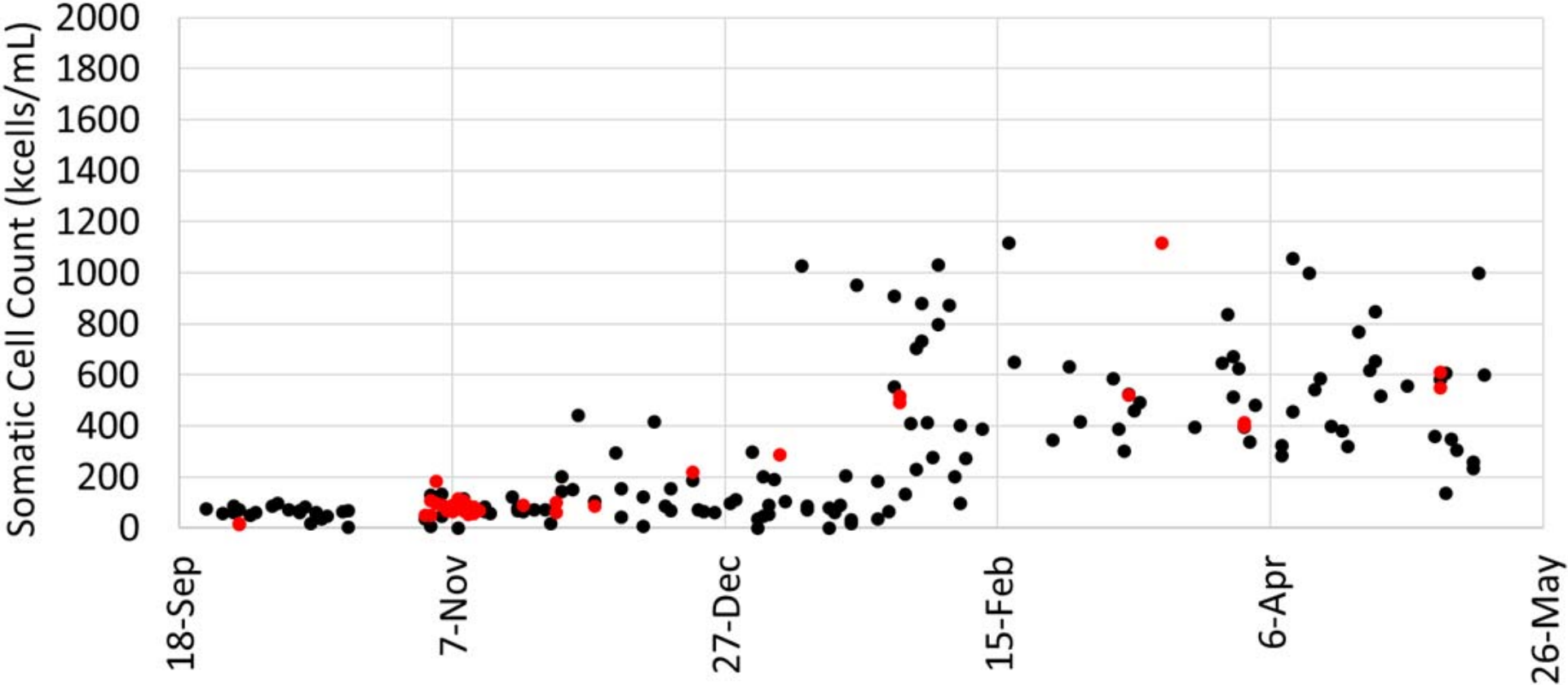
Cow 254



Cow 48



Cow 188



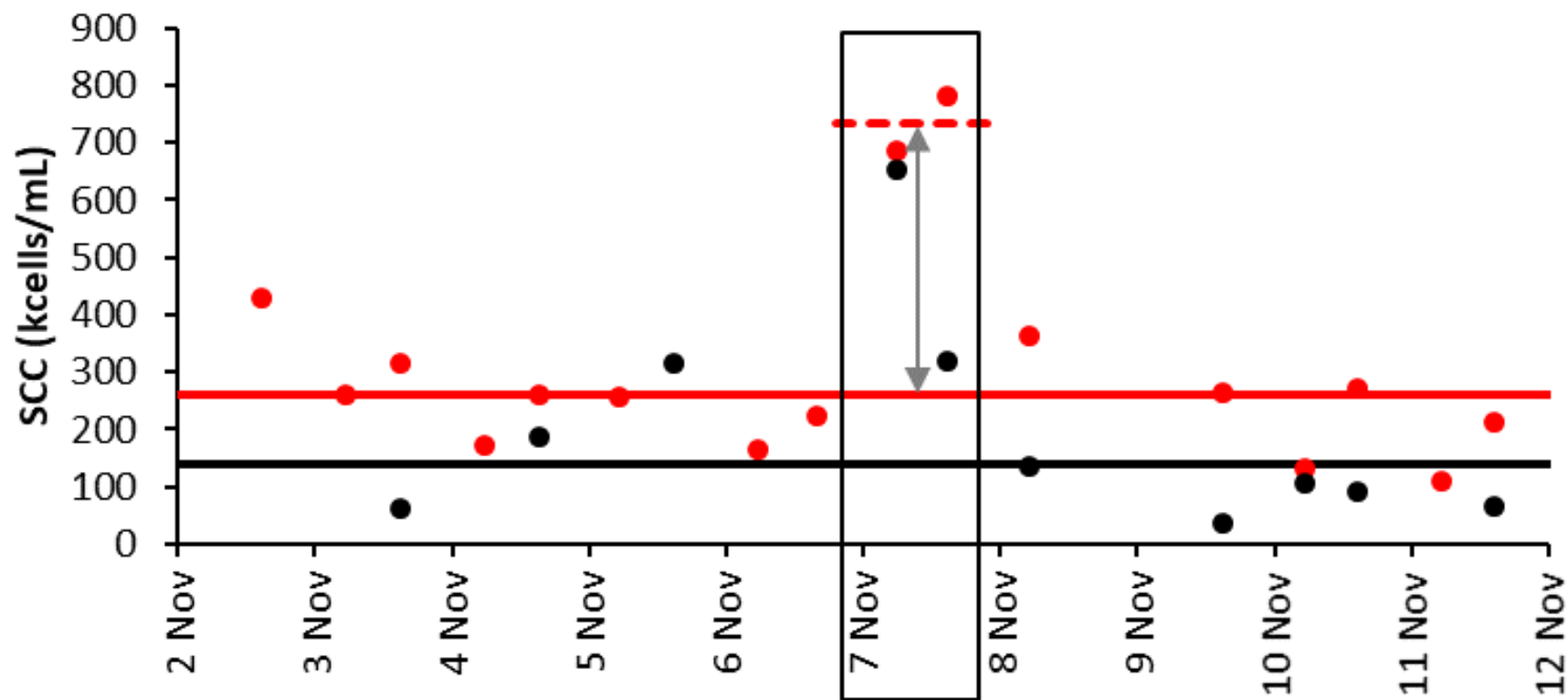
• CellSense • Herd Test

Trial

CellSense every second bail

Herd tests every
milking for 10 days

Cow 100



● Herd test

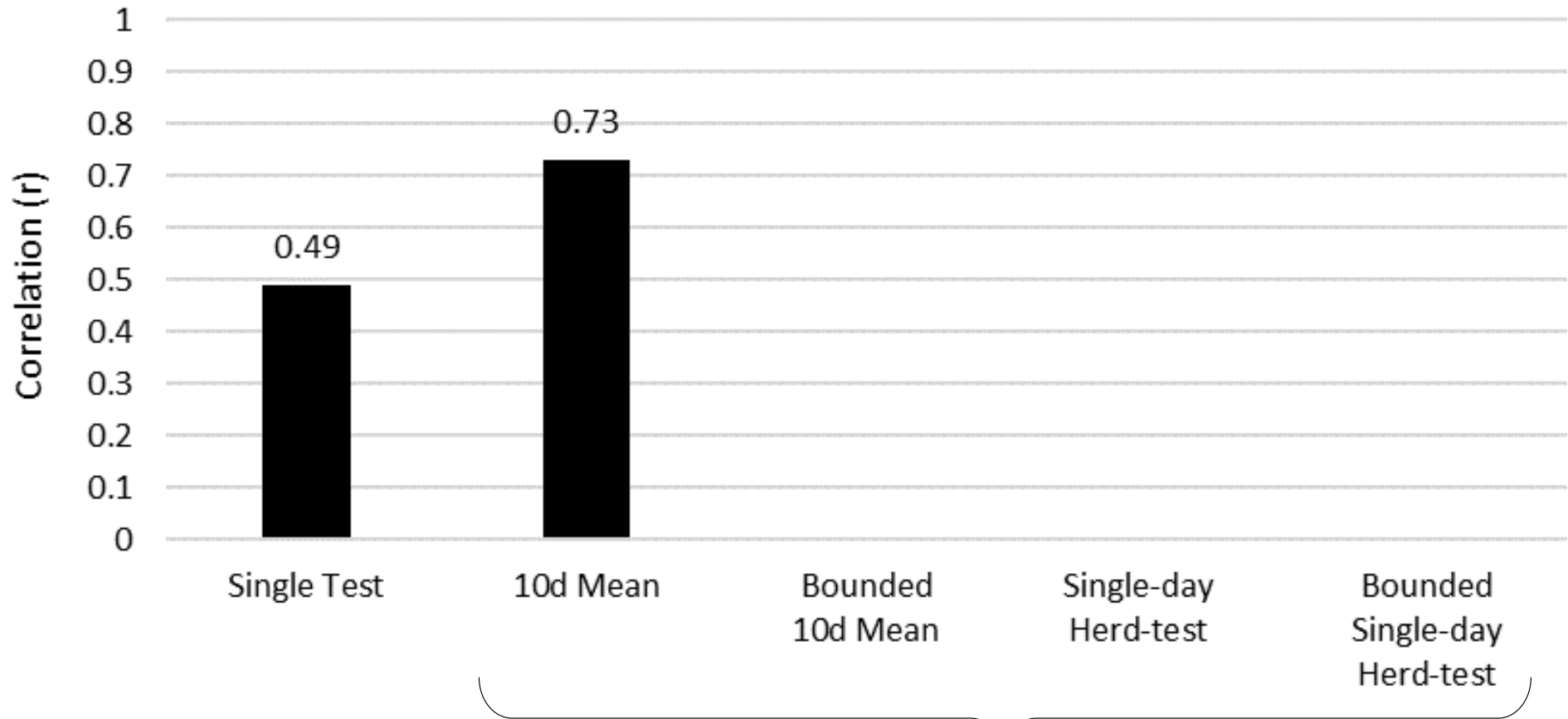
— 10d HT mean

- - - 7-Nov HT mean

● CellSense

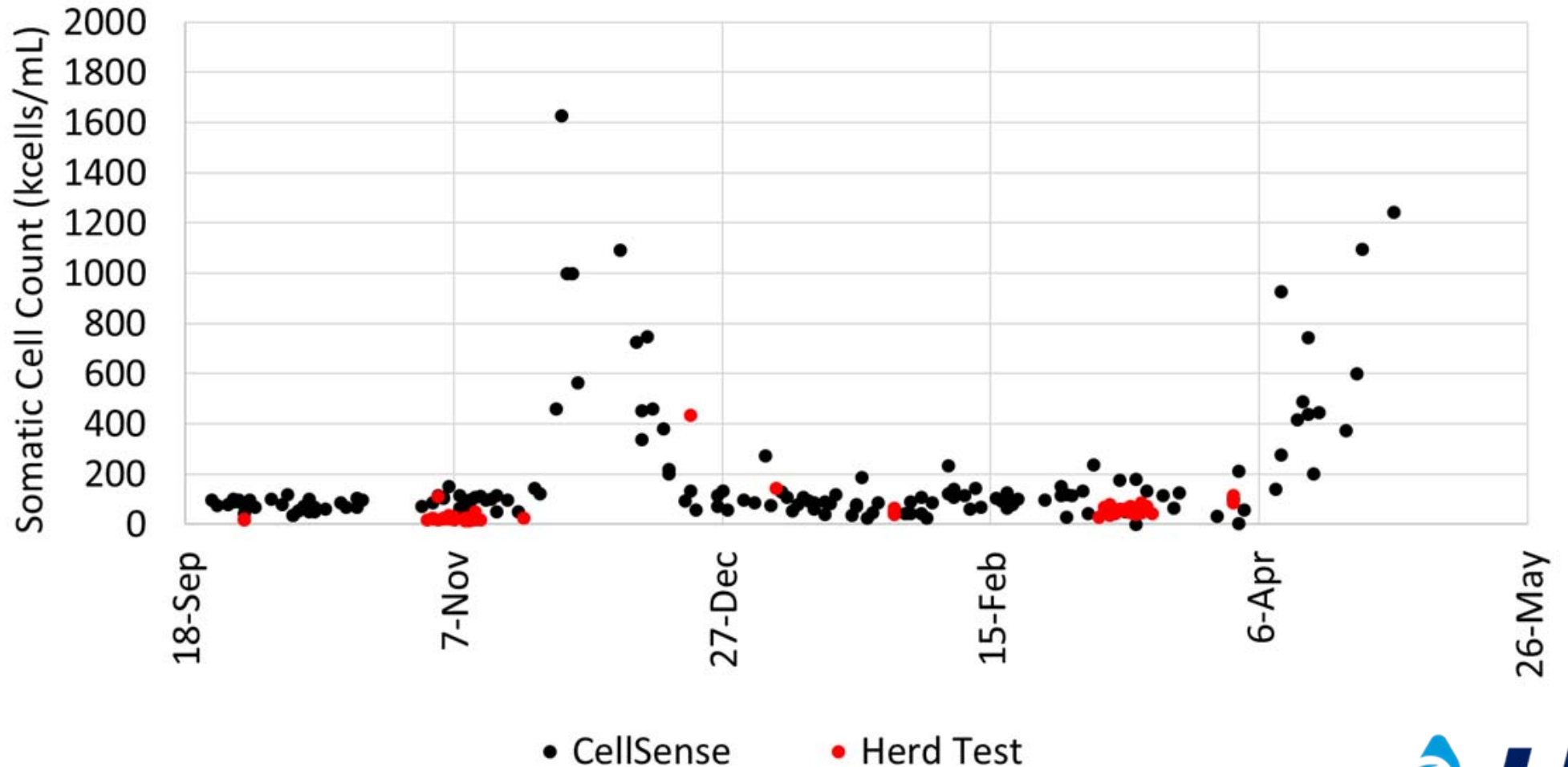
— 10d CS mean

Correlation (\log_2 scale)



Correlation with 10d HT mean

Cow 254

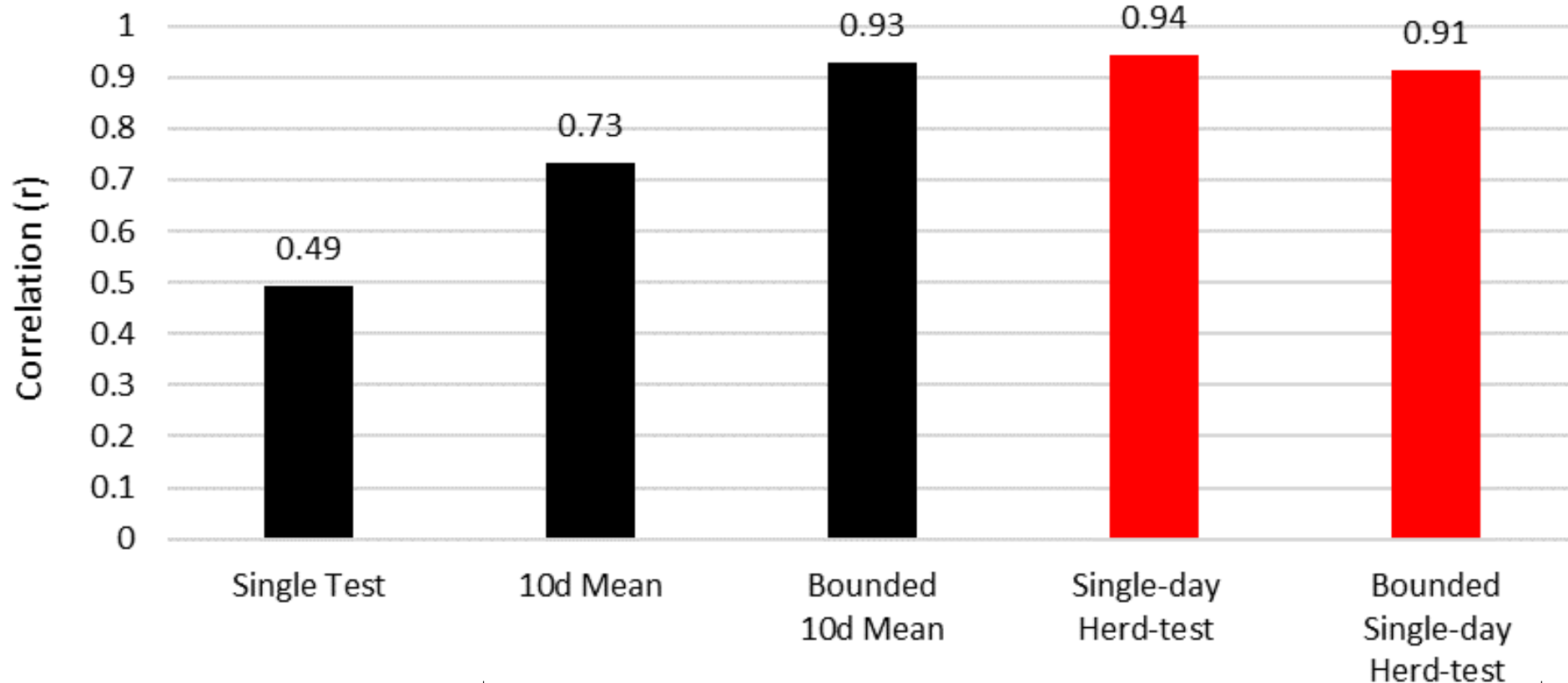


Foss

Specifications Fossomatic™ 7 and Fossomatic™ 7 DC

Performance	0 – 10 mill Cells/ml
Measuring range	0.1 – 1.5 mill
Performance range	CV < 6% 100-299k SCC/ml CV < 4% 300-499k SCC/ml CV < 3% 500-1500k SCC/ml
Repeatability*	< 10% relative mean diff. from DMSCC (Direct Microscopic Somatic Cell Count)
Accuracy	< 1% relative usually below 0.4% Cow's, goat's, sheep's milk and buffalo <small>(Abbreviation: AVG = Average)</small>

Correlation (\log_2 scale)



Correlation with 10d HT mean

ICAR Guideline

Table 3. The accuracy limits for approval of milk analyzers (compulsory elements for approval of milk analyzers).

Accuracy	Range	St. Dev.	Bias
Fat	2.0-6.0 g/100g	0.25 g/100g	0.13 g/100g
Protein	5.0-14.0 g/100g	0.25 g/100g	0.25 g/100g
	2.5-4.5 g/100g	0.25 g/100g	0.13 g/100g
	4.0-7.0 g/100g	0.25 g/100g	0.25 g/100g

Table 4. The accuracy limits for on-farm milk analyzers in milk recording for lactose, urea and SCC (non-compulsory elements for approval of milk analyzers).

Accuracy	Range	St. Dev.	Bias
Lactose	4.0-5.5 g/100g	0.25 g/100g	0.13 g/100g
Urea	10 - 70 mg/100g	15.0 mg/100 g	3.0 mg/100 g
SCC	0-2000	25 %	13 %

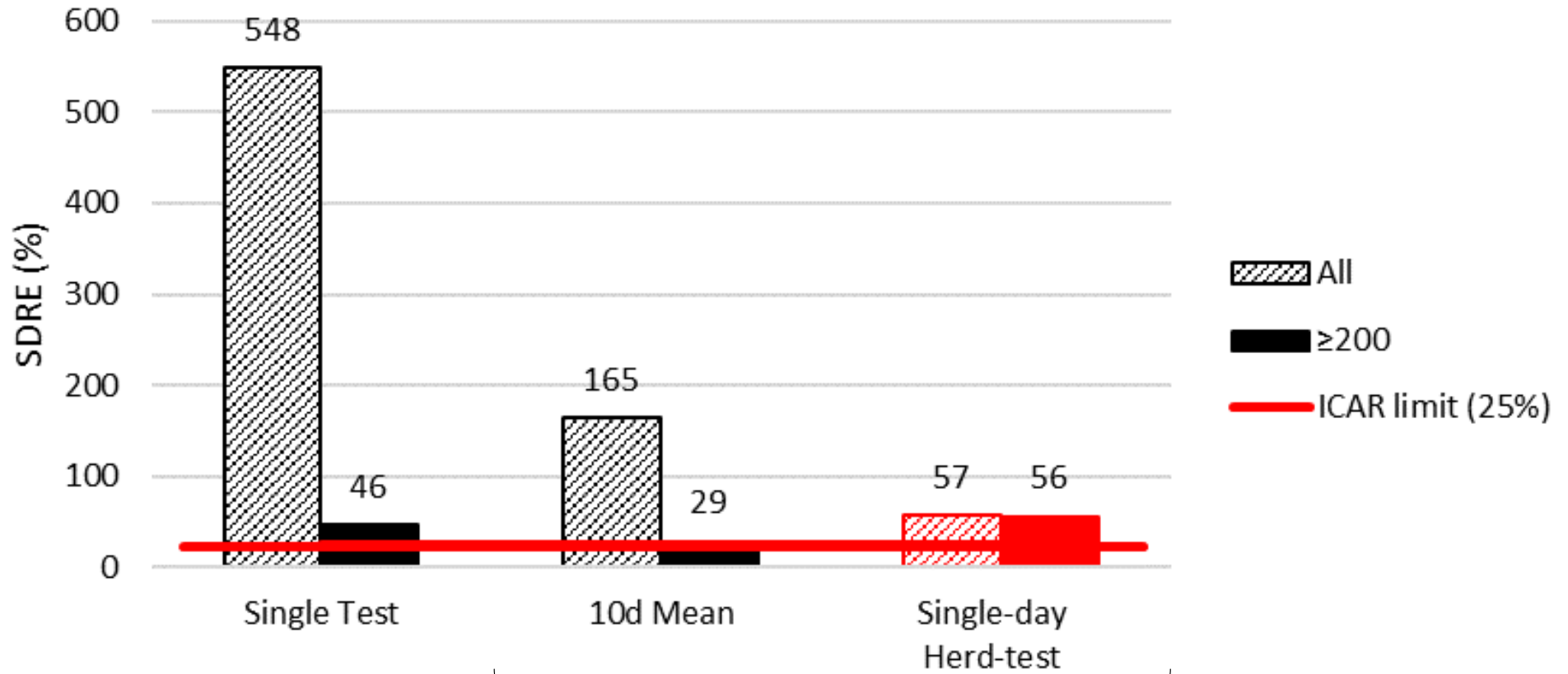
Effects on milking and milk quality

A milk recording device including a sampler or milk analyser shall:

- Have none or a limited effect on the teat end vacuum as stated in ISO 5707 and according ISO 6690.

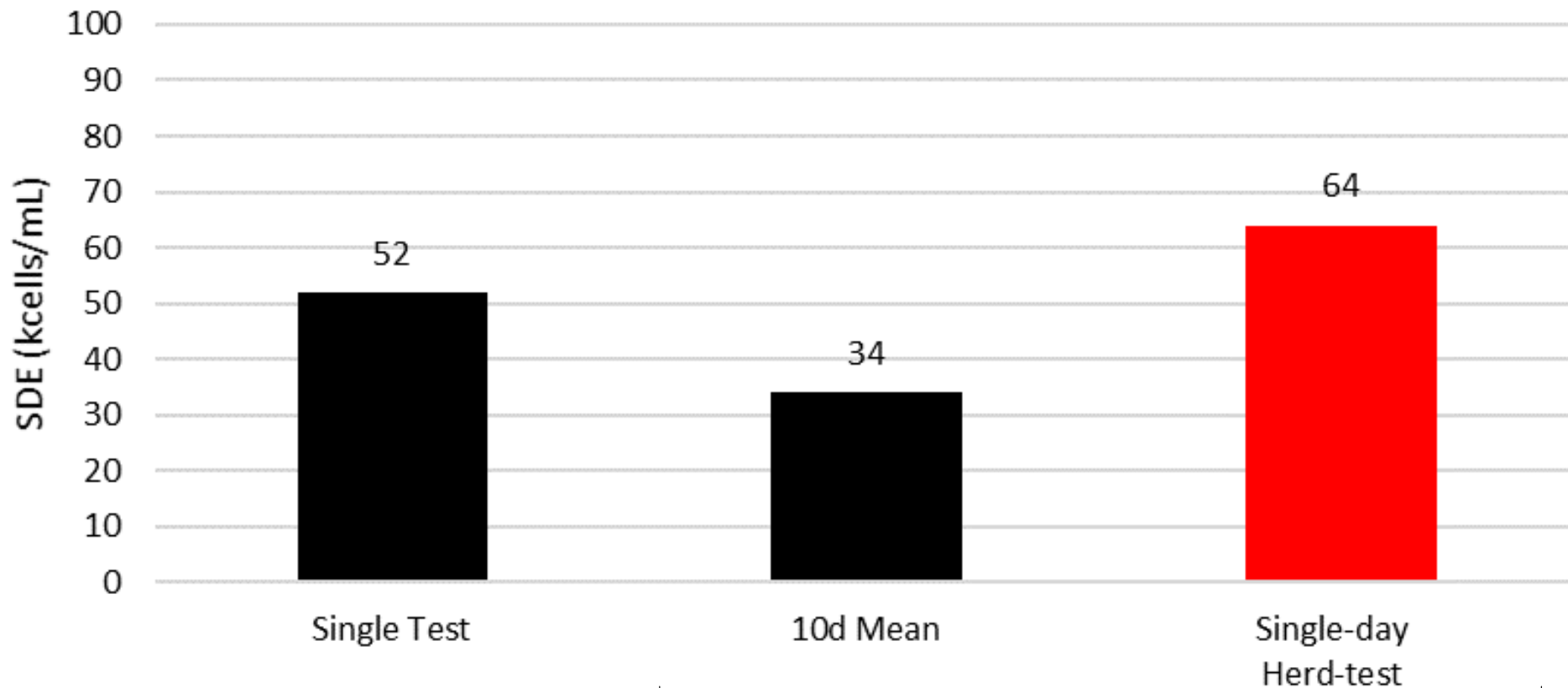
in the milk, measured according to

SD of Relative Error



Comparison with 10d HT mean

SD of Error (<200 kcells/mL)



Comparison with 10d HT mean

Conclusions

CellSense provided a better estimate of ten-day cow-mean SCC than a single-day herd test

CellSense well outside ICAR accuracy limits

ICAR accuracy limits for SCC need to be reviewed

Recommendations

Avoid exaggeration of errors
at low SCC

Banded system?

System output more
important than individual
tests

Relax bias limits for on-line
analysers

Recognise the importance of
cow-specific bias

Results should be averaged by cow



CellSense[®]
SCC Sensor

LIC[™]

LIC[™]
Automation