THE GLOBAL STANDARD FOR LIVESTOCK DATA

Network. Guidelines. Certification.

ICAR Proficiency test on milk overview

Precision and comparison between routine and reference method

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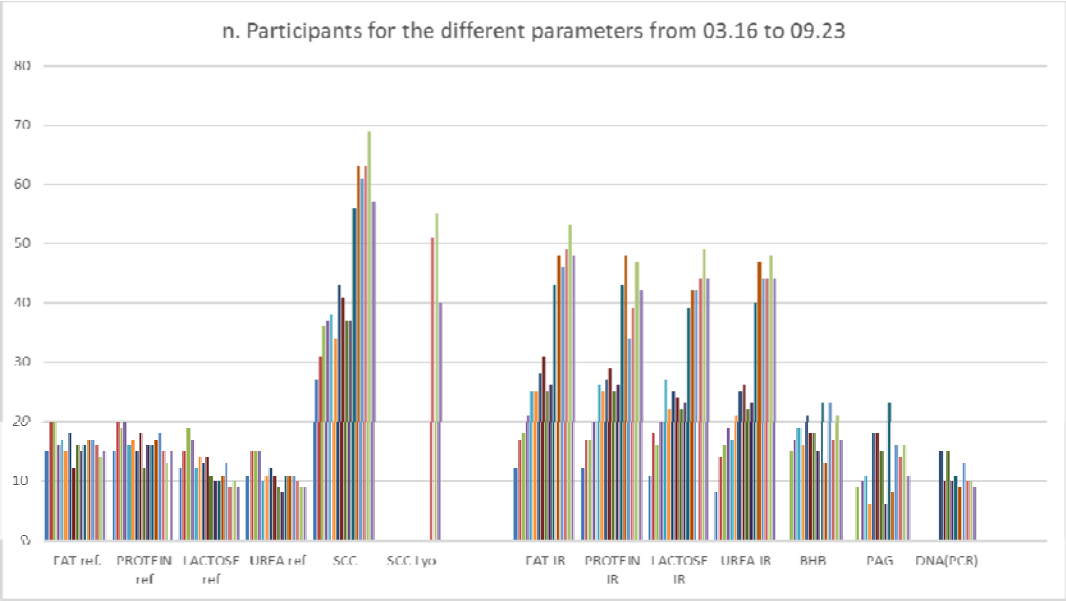
ICAR PT Participant labs over the years



Reference methods

Fat Protein the number of participants are constant between 15-20 labs

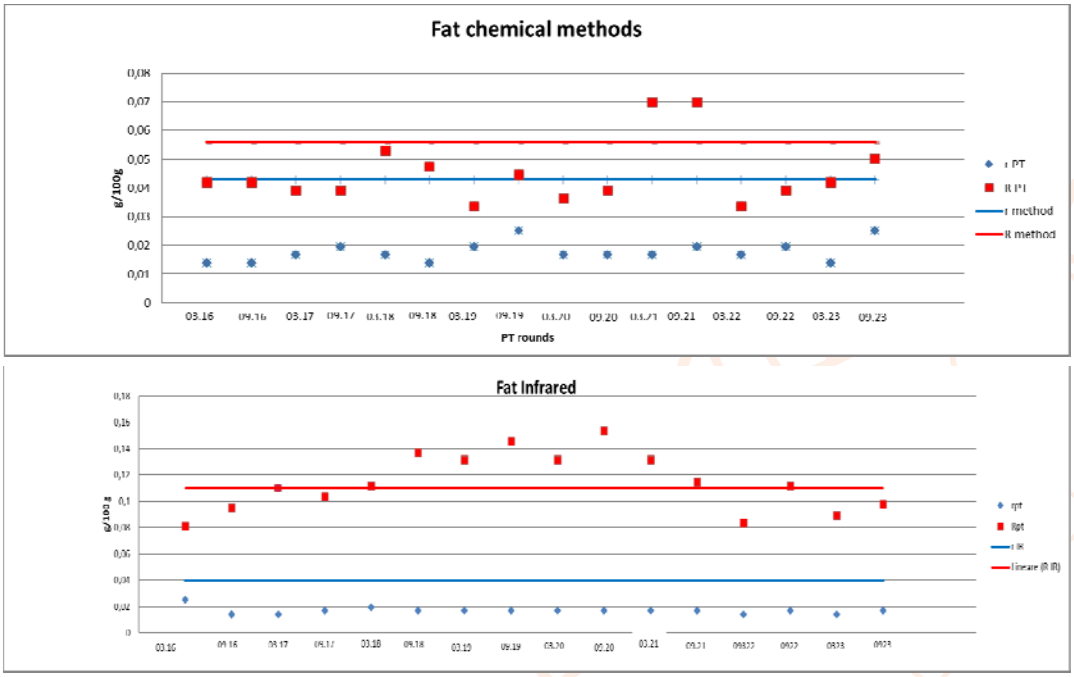
Lactose Urea the number of participants are constant between 9-19

Somatic cell counting after the introduction of the EU JCRC CRM the number of participants increase of 43 % for total of 69 partcipant labs

The great interest could be because ICAR PT provides

- assign value calculated on the PT robust mean
- assign value traceable with the EU JRC CRM

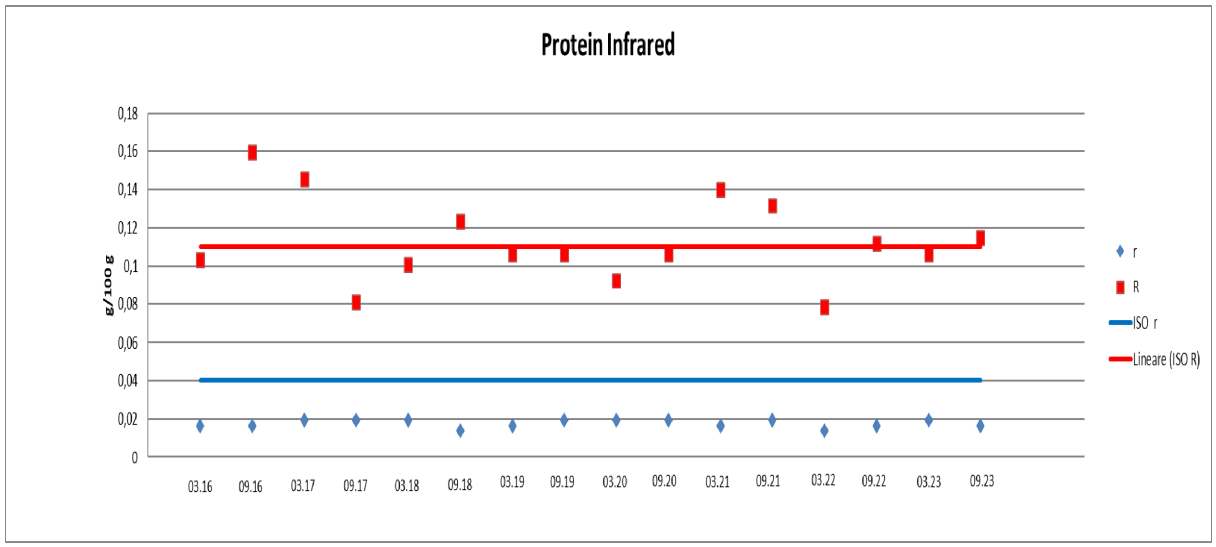
Fat precision



In this slide the FAT precision of the reference method (Chemical methods) and routine methods (IR) are figured out

The repeatability is always below the ISO limits for both methods

The reproducibility is always compliant with ISO limits from 2022

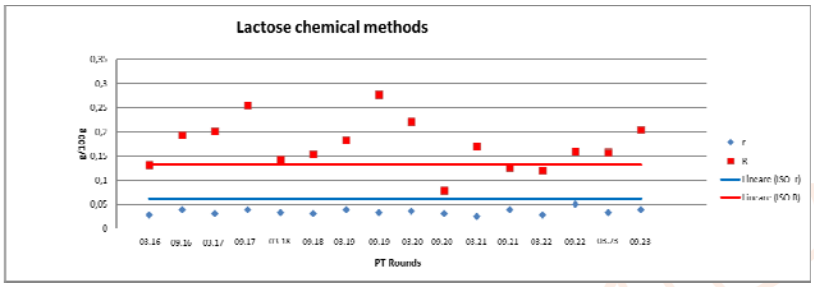


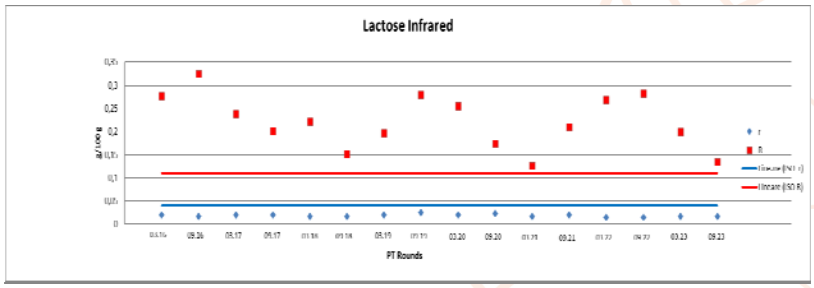
In this slide the protein precision of the reference method (Chemical methods) and routine methods (IR) are figured out

The repeatability is always below the ISO limits for both methods

The reproducibility is higher than the ISO limit for Kjeldhal method and it is at the limit in the last 3 rounds

Lactose precision



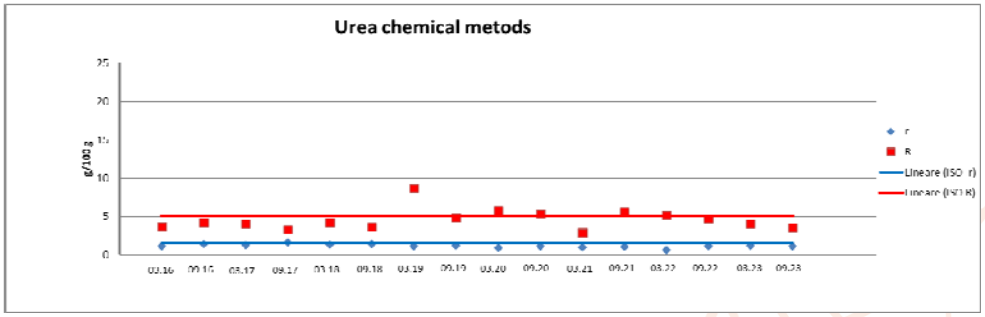


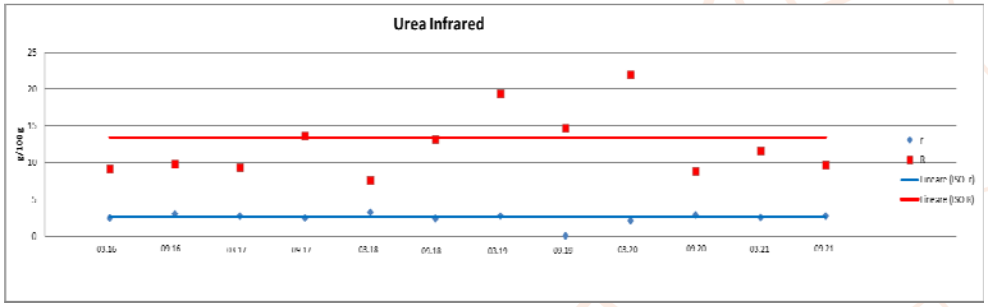
In this slide the Lactose precision of the reference method (Chemical methods) and routine methods (IR) are figured out

The repeatability is always below the ISO limits for both methods

The reproducibility is higher than the ISO limit for both methods in the last 3 rounds

Urea precision



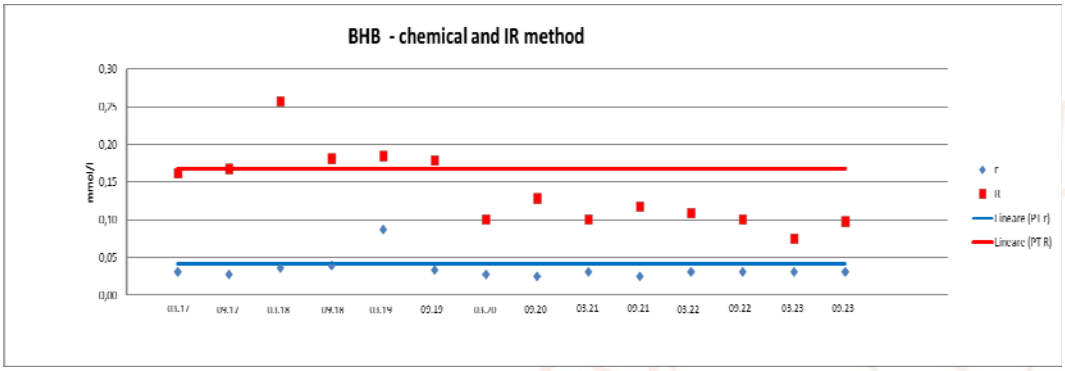


In this slide the Urea precision of the reference method (Chemical methods) and routine methods (IR) are figured out

The repeatability is always below the ISO limits for both methods

The reproducibility is lower than the ISO limit for both methods in the last 3 rounds

BHB



To evaluate if it is necessary to reduce the R limit thanks to the good trend

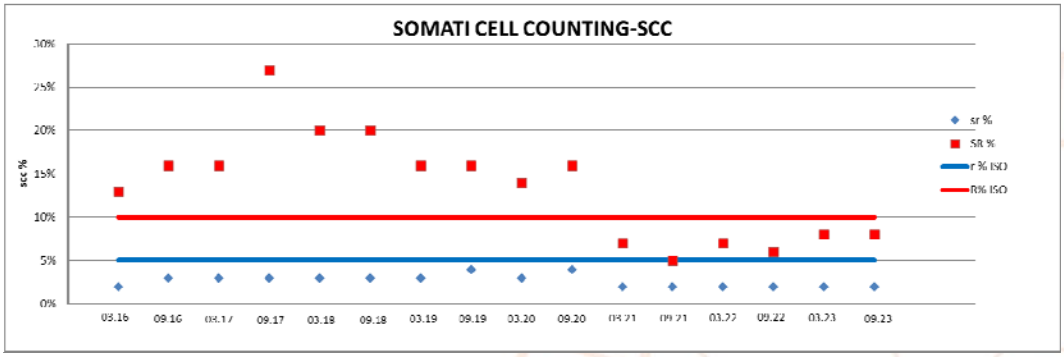
In this slide the BHB precision of routine methods (IR) are figured out

The precision limits have been fixed temporarily by the MA SC

The repeatability and reproducibility is always lower that the established limit in the last 8 rounds

MA SC will evaluate if more strict limits can be fixed

Somatic Cell Counting



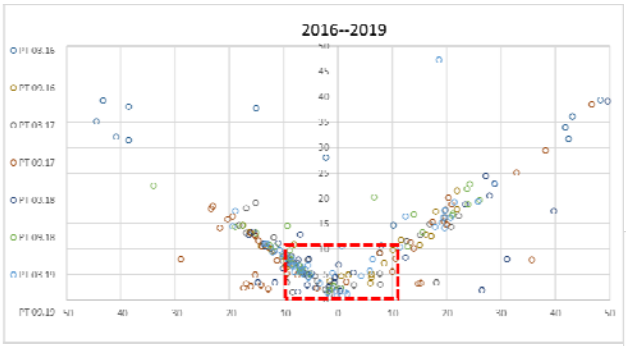
In this slide the SCC precision routine methods (FC) are figured out

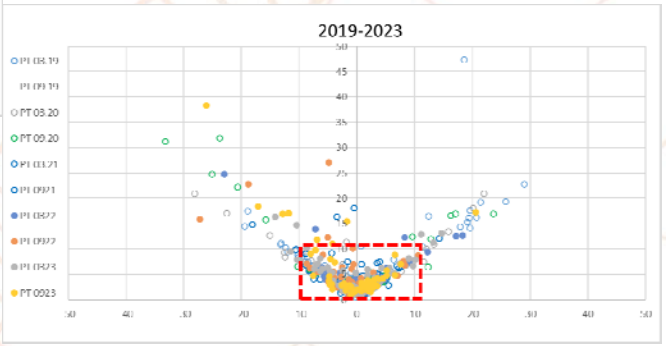
The repeatability is always below the ISO limits

The reproducibility impressively decreased after the introduction of EU JRC CRM.

The graphic shows that R is always lower than ISO limits in the last 6 rounds.

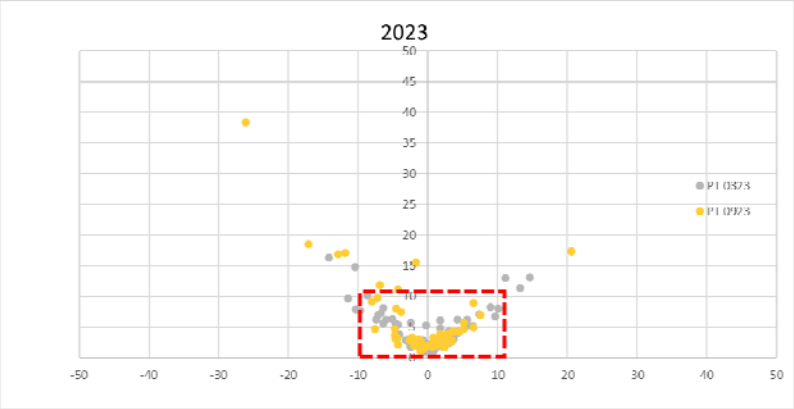
SCC over the time





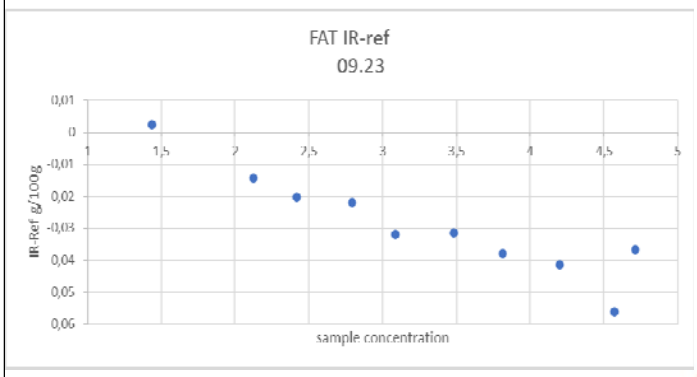
These graphics well represent the distribution improvement after 2020

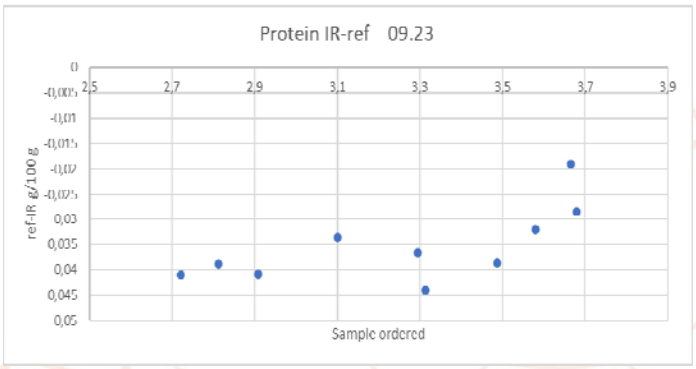
SCC 2023



In the two rounds of 2023 only 11% of all participants labs (126) are out of the target of +/- 10 %

Comparison IR-Chemical method





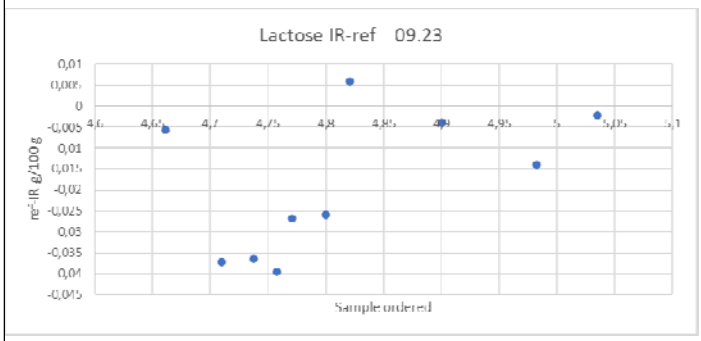
In the ICAR PT the samples can be analysed with chemical and with reference method.

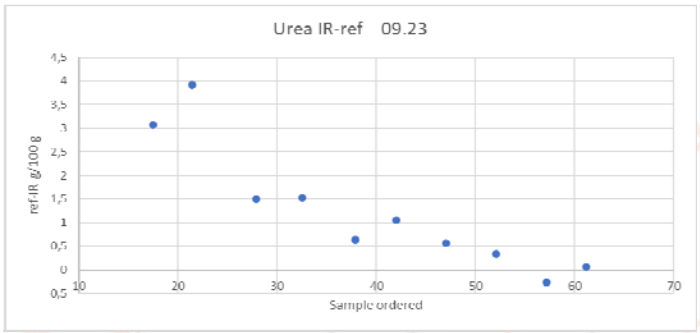
For the last PT round, Sept. 2023, the graphics above report the difference between the robust mean of the chemical method and the robust mean of the IR method for each PT sample

For Fat there IR under estimate with a trend with the concentration increasing The difference is never less than - 0,055 g/100 g

For protein IR under estimation of max 0,045 g/100 till a concentration of 3,5g/100

Comparison IR-Chemical method





In the ICAR PT the samples can be analysed with chemical and with reference method.

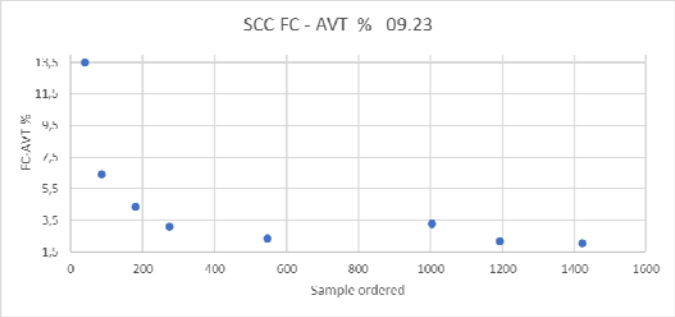
For the last PT round, Sept. 2023, the graphics above report the difference between the robust mean of the chemical method and the robust mean of the IR method for each PT samples.

For Lactose IR under estimate in the first part of the range (4,6-4,8 g/100g)but the differences are never lower than - 0,04 g/100 g

For Urea IR over estimate in the first part of the range 20-30 mg/dl and the differences go close to zero for the rest of the range

Somatic Cell Counting

Comparison (FC-AVT)%



This slides shows the differences in % between the FC and AVT

With the exception of the low range 40-80 *1000 SCC/ml

From 180 to 1420 *1000 SCC/ml the difference is never more than 5%

ICAR PT Summary

Performance of ICAR PT on Milk

Parameter	n.Labs (min/max)	Repeatability (r)	Reproducibility (R)
Fat Ref	15-20	✓	✓
Protein ref	12-20	✓	✗
Lactose ref	9-19	✓	✗
Urea ref	8-15	✓	✓
SCC	31-69	✓	✓
Fat IR	12-49	✓	✓
Protein IR	12-48	✓	✓
Lactose IR	11-49	✓	✗
Urea IR	8-48	✓	✓
BHB IR	15-23	✓	✓

ICAR PT September 2023 BIAS (IR-Ref)

	Max Bias (IR-Ref)
Fat (1,5-4,7 g/100g)	-0,06 g/100g
Protein (2,7-3,7 g/100g)	-0,045 g/100g
Lactose (4,6-5,0 g/100g)	-0,04 g/100g
Urea (17-61 mg/dl)	4 mg/dl
SCC (180-1400*1000 cells/ml)	5%

All the details in the complete presentation
”ICAR PT Precision and comparison 16.01.24.pptx”

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Let’s stay updated on the ICAR PT on Milk

Thank you for your attention!