THE GLOBAL STANDARD
FOR LIVESTOCK DATA

Network. Guidelines. Certification.

FRAME OF ACTIVITY : ICAR MILK ANALYSES SUB-COMMITTEE (MA SC)

ICAR - Proficiency Testing Scheme Raw cow milk (December 2016)

ORGANISER: ICAR, VIA SAVOIA 78, I-00198 ROME, ITALY

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1. Introduction

Dear Participant,

Thank you for participating in the ICAR Proficiency Test (PT) December 2016 !
This was an extra PT organized for the new parameters Beta-Hydroxybutyric (BHB), Microorganism DNA (Polymerase Chain Reaction-PCR and Pregnancy Associated Glycoproteins (PAG).
The participation in ICAR proficiency test will comply with analytical quality assurance requirements ISO 17025 and with the system of Certification of Quality implemented by ICAR from 2006 includes a recognition of the competence of laboratories and, more widely, of analytical systems in ICAR member organisation that requires regular PT participation with international anchorage.

In this report you will find sections 2 and 3 which are dedicated to "your" quality assurance management and section 4 dedicated to the "general" statistical elaboration for each parameter.

The proficiency test is a tool to help evaluate the performance of the laboratory process and to support your laboratory quality assurance system. It's aim is to provide independent data for you to monitor, evaluate and ultimately improve your processes as you see fit.

From the analyses of the data received we have identified some aspects that if evaluated and managed may serve to improve some control steps of your quality management ISO 17025.

When the PT samples arrive to your laboratory they can be viewed as being from a 'customer' that is asking you to provide timely, precise and accurate results.

In tables A,B,C,D,E,F.G if all the information is reported correctly from the participant, then the cells are filled in green, otherwise they are highlighted in red for your attention, so you can review and verify any causal reasons internally. The control charts H will help you to follow your performance over the time for the quantitative results.

1. Beta-Hydroxybutyric (BHB), it is presented a quantitative statistical elaboration:

1.1 In section A you find your participation codes and the information if all the results have been sent to the PT provider.

1.2 In section B is indicated if the results have been sent on time.

1.3 In section C is indicated if the results have been reported in the correct unit of measurements.

1.4 In this section D is reported if some of your results are outlier for Grubbs or Cochran test

1.5 The evaluation of repeatability in section E. The absolute difference between replicates is compared with the repeatability limit indicated. If one or more results have a result out of the limit, the cell is in red. For BHB Infrared method the limit of repeatability are indicative and they will be further discussed in the ICAR MA SC.

1.6 In section F the results of your Z-ScorePT (standard deviation calculated on this proficiency test) are summarized. If you have obtained all the -2<Z-Score results<+2 the cell will be filled in green. If

you have obtained one or more results in the moderate or poor performance range the cells will be filled in yellow or red respectively. The Z-ScoreFIX (standard deviation of the reference method) is not reported because the standard deviation of the method has not established yet.

1.7 In section G the ranking of your lab will be green if the mean of difference and standard deviation of difference value are in the box of figure 2 for BHB parameter. Limits are only indicative and so far do not constitute standard values; they indicate what is normally reachable by labs for their self evaluation. According the results obtained the MA SC will decide eventually to revise.

1.8 In section H the control charts have been created using your data obtained with the Z-ScorePT and the control charts will be updated progressively. During this year 2017 we will establish the Z-ScoreFIX.

2. Pregnancy Associated Glycoproteins (PAG) it is presented a quantitative statistical elaboration:

For each sample it is reported the reference answer (yes or not) and the lab result (yes or not).

The relative frequency of the right answers (FRL%) of your laboratory is reported. 100 % means that all the laboratory results are correct.

3. Microorganism DNA (Polymerase Chain Reaction-PCR technique) it is presented a quantitative statistical elaboration:

For each sample it is reported the strain and the lab result (positive or negative). Because not all the tests used have the same capacity it will be up to the lab to judge the own performance considering the manufacture specification. The cell in orange indicates that the laboratory results is not aligned with the reference and the cell in green indicates that the laboratory results is aligned with the reference.

ICAR would like to stay at your side to support you in any way we can to help improve overall quality management systems for milk analyses. Your active participation in the ICAR PTs and in the Milk Analyses meetings is encouraging. We welcome any and all feedback/comments you may have on this activity, as it will help us continuously improve and to ultimately provide you a better service.

Kind Regards,

ICAR Secretariat

ICAR PT
December 2016

Laboratory participation codes and Performance analyses

Laboratory Name	

A — Your participation Codes

	BHB	PAG	Microorganism DNA
Subscription	Yes	Yes	Yes
Participation code	1		xx
Are all the sample results received ?	Yes		

B

Data received on time		Deadline
Yes	No	12/16/2016

C

Have you sent the data with the correct units of		
BHB	PAG	Microorganism DNA
mmol/Litre		
Yes	Qualitative determination	

D

Outliers
BHB
mmol/Litre

E

Repeatability	
Your "r" performance	BHB
BHB	mmol/litre
mmol/litre	
	0,03 mmol/liter

If the repeatability in smaller than the limit the cell is in green if there is a sample with a "r" bigger than the limit the cell is in red. Please check table II in correspondence of the parameter and your lab code. The value are indicative because this is the first ICAR PT and there is not an offical reference

F — Z-Score

Your Z-Score PT				Interpretation Z-Score				
BHB				-2<Z-Score<2	-3<Z-Score<-2	2<Z-Score<3	Z-Score<-3	Z-Score>3
				Good	Moderate	Moderate	Poor	Poor

If there is a sample with a "z-score" in the yellow or red area please check table VI in correspondence of your lab code.

G — Accuracy performance

Mean difference and standard deviation of difference	FLR%		Indicative Limits	
BHB	PAG		BHB	PAG
			mmol/litre	
			d=0,045 sd=0,045	100%

If d and sd are in the limit (see Table 1 and Figure 1) the cells are in green

Note : Limits are only indicative and so far do not constitute standard values; they indicate what is normally reachhable by labs for their self evaluation

Legenda:

- positive performance for all the sample
- same sample showed a performance out of range or there are miss data
- The parameter was not analyzed

FLR % Relative frequency in right answers per laboratory

Microorganism DNA

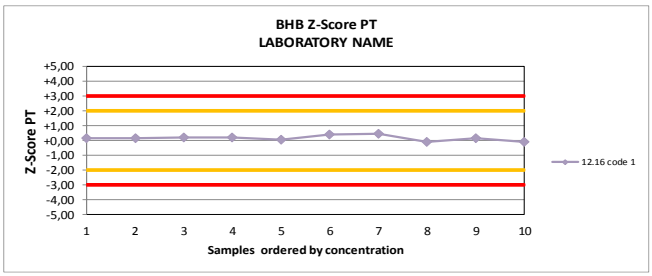
Laboratory results

Sample	1	2	3	4	5
Microorganism DNA	klebsiella oxytoca	Coagualse negative Stafilococci	Stafilococci aureus	Negative	Escherichia Coli
CFU/ml	450	530	790	'-	490
Lab results code xx	Neg	Neg	Pos	Neg	Neg

Because not all the tests used have the same capacity it will be up to the lab to judge the own performance considering the manufacture specification.
The cell in orange indicate that the result is not aligned with the reference
The cell in green indicates that the result is aligned with the reference

Control Charts

Control Charts BHB



H

ICAR
PROFICIENCY TESTING SCHEME

December 2016

Raw Milk

BHB Beta-HydroxyButyrate

Sending date of statistical treatment : 10th january 2017

Frame of activity :	ICAR Milk Analyses Sub Committee (MA SC)	
Contact :	Gavin Scott	gavin@milktest.co.nz
ICAR Staff	Silvia Orlandini	pt@icar.org silvia@icar.org

ACTALIA CECALAIT ®

Table I : **Ranking of the laboratories** Units : milimole of BHB / liter of milk

Nb	%	N°	d	Sd	D	Method
1	7	1	+ 0,007	0,010	0,012	B
2	14	13	+ 0,002	0,016	0,016	A
3	21	6	- 0,010	0,015	0,018	A
4	29	5	+ 0,017	0,007	0,019	A
5	36	8	- 0,031	0,014	0,034	A
6	43	2	- 0,032	0,014	0,035	C
7	50	9	- 0,041	0,019	0,045	A
8	57	14	- 0,047	0,012	0,048	A
9	64	3	- 0,051	0,019	0,055	A
10	71	4	+ 0,053	0,020	0,057	A
11	79	7	- 0,058	0,018	0,061	A
12	86	11	+ 0,059	0,016	0,061	A
13	93	10	+ 0,068	0,011	0,069	A
14	100	12	+ 0,107	0,060	0,123	A

The table should be studied in parallel with figure 1 where the laboratories are located according to an acceptability area (or target) the limits of which are :

$\bar{d}$ = +/- 0,045 milimole of BHB / liter of milk
Sd = 0,045 milimole of BHB / liter of milk

REF : Assigned values are robust average values per sample according to algorithm A of standard ISO 13528, of 14 set of results send by 14 laboratories discarging using Grubbs test at 5 % risk level

A I.R.
B Chemical method
C No specify method

(NC : OUT of RANKING because of insufficient data number)

(Nb : laboratory rank; % : relative rank)
(N° : laboratory identification number)
(d et Sd : mean and standard deviation of the differences (laboratory -reference))
(D : Euclidian distance to YX-axis origin = SQUARE ROOT.(d^2 + Sd^2))

Repeatability standard deviation of this ICAR proficiency test (after Cochran elimination at 5 %)	Sr_{PT}	0,015
Reproducibility standard deviation of this ICAR proficiency test (after Cochran and Grubbs elimination at 5 %)	SR_{PT}	0,045

Note : Limits are only indicative and so far do not constitute standard values; they indicate what is normally reachable by labs for their self evaluation.

Table II : **REPEATABILITY - Absolute difference between replicates in milimole of BHB / liter of milk**

Sample / Lab code	1	2	3	4	5	6	7	8	9	10	Sr	NL
1	0,000	0,000	0,010	0,010	0,000	0,020	0,050	0,020	0,010	0,000	0,013	20
2	0,010	0,020	0,010	0,040	0,020	0,000	0,020	0,010	0,010	0,000	0,013	20
3	**	**	**	**	**	**	**	**	**	**		
4	0,010	0,010	0,030	0,060	0,030	0,030	0,040	0,000	0,050	0,010	0,023	20
5	0,010	0,010	0,020	0,000	0,010	0,030	0,010	0,010	0,010	0,010	0,010	20
6	0,010	0,020	0,040	0,000	0,010	0,020	0,010	0,020	0,010	0,020	0,013	20
7	0,010	0,010	0,010	0,010	0,010	0,020	0,030	0,010	0,020	0,020	0,012	20
8	0,000	0,000	0,020	0,020	0,010	0,010	0,030	0,010	0,000	0,020	0,011	20
9	0,010	0,000	0,010	0,010	0,000	0,000	0,000	0,000	0,000	0,030	0,008	20
10	0,070 *	0,030	0,010	0,000	0,030	0,010	0,010	0,000	0,000	0,060	0,023	20
11	0,030	0,020	0,010	0,030	0,030	0,020	0,040	0,060 *	0,050	0,020	0,024	20
12	**	**	**	**	**	**	**	**	**	**		
13	0,020	0,010	0,030	0,000	0,020	0,010	0,040	0,010	0,010	0,040	0,016	20
14	0,020	0,000	0,010	0,010	0,010	0,010	0,000	0,020	0,020	0,040	0,013	20
Sr	0,017	0,010	0,014	0,017	0,013	0,013	0,020	0,015	0,016	0,020		240
NE	24	24	24	24	24	24	24	24	24	24		
L	0,036	0,037	0,051	0,061	0,047	0,045	0,073	0,031	0,058	0,072		

Sr : repeatability standard deviation of each laboratory limit 0,011 milimole of BHB / liter of milk

NL : number of measurements per laboratory

L : Limit for difference between duplicates according Cochran test at 5% level.

SE : repeatability standard deviation per sample

NE : number of measurements per sample

*: discarded data using the test of Cochran at 5 %

** : missing data

r : limit of repeatability, absolute difference betwen two replicates=0,030 milimole of BHB / liter of milk

Table III : **Means of the replicates in milimole of BHB / liter of milk**

Sample / Lab code	1	2	3	4	5	6	7	8	9	10
1	0,220	0,080	0,135	0,115	0,100	0,170	0,205	0,200	0,055	0,230
2	0,185	0,070	0,095	0,060	0,050	0,130	0,140	0,165	0,035	0,190
3	0,166	0,048	0,067	0,048	0,057	0,090	0,114	0,140	0,034	0,159
4	0,295	0,115	0,195	0,170	0,125	0,185	0,230	0,260	0,075	0,315
5	0,245	0,085	0,140	0,120	0,105	0,165	0,205	0,225	0,065	0,255
6	0,185	0,080	0,130	0,100	0,095	0,130	0,165	0,190	0,055	0,210
7	0,155	0,025	0,075	0,065	0,045	0,110	0,105	0,125	0,010	0,140
8	0,190	0,050	0,110	0,080	0,075	0,115	0,135	0,155	0,040	0,180
9	0,185	0,000	0,075	0,055	0,050	0,110	0,150	0,190	0,000	0,215
10	0,315	0,135	0,195	0,150	0,165	0,225	0,245	0,270	0,120	0,300
11	0,305	0,130	0,195	0,155	0,135	0,190	0,250	0,290	0,085	0,290
12	0,410	0,130	0,190	0,220	0,150	0,270	0,280	0,340	0,080	0,440 *
13	0,230	0,055	0,145	0,090	0,080	0,155	0,190	0,235	0,035	0,240
14	0,160	0,030	0,095	0,065	0,055	0,105	0,120	0,150	0,020	0,170
M	0,232	0,074	0,132	0,107	0,092	0,154	0,181	0,210	0,051	0,223
REF.	0,226	0,074	0,132	0,104	0,091	0,150	0,181	0,207	0,049	0,223
SD	0,074	0,042	0,048	0,051	0,040	0,051	0,056	0,063	0,032	0,056

M = mean per sample REF. = reference values

SD = standard deviation per sample *: discarded data using the test of Grubbs at 5 %

REF : Assigned values are robust average values per sample according to algorithm A of standard ISO 13528, of 14 laboratories , after outliers discarging using Grubbs test at 5 % risk level.

Table IV : Outlier identification

Sample	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Outliers Cochran	10							11		
Outlier Grubbs										12
sr	0,010	0,010	0,014	0,017	0,013	0,013	0,020	0,009	0,016	0,020
SR	0,051	0,043	0,046	0,042	0,039	0,040	0,051	0,047	0,036	0,056

Table V : **ACCURACY - differences (laboratory - reference) in milimole of BHB / liter of milk**

Sample / Lab code	1	2	3	4	5	6	7	8	9	10	d	Sd_{lab}	t
1	- 0,006	+ 0,006	+ 0,003	+ 0,011	+ 0,009	+ 0,020	+ 0,024	- 0,007	+ 0,006	+ 0,007	+ 0,007	0,010	2,34
2	- 0,041	- 0,004	- 0,037	- 0,044	- 0,041	- 0,020	- 0,041	- 0,042	- 0,014	- 0,033	- 0,032	0,014	7,19
3	- 0,060	- 0,026	- 0,065	- 0,056	- 0,034	- 0,060	- 0,067	- 0,067	- 0,015	- 0,064	- 0,051	0,019	8,57
4	+ 0,069	+ 0,041	+ 0,063	+ 0,066	+ 0,034	+ 0,035	+ 0,049	+ 0,053	+ 0,026	+ 0,092	+ 0,053	0,020	8,24
5	+ 0,019	+ 0,011	+ 0,008	+ 0,016	+ 0,014	+ 0,015	+ 0,024	+ 0,018	+ 0,016	+ 0,032	+ 0,017	0,007	7,99
6	- 0,041	+ 0,006	- 0,002	- 0,004	+ 0,004	- 0,020	- 0,016	- 0,017	+ 0,006	- 0,013	- 0,010	0,015	2,07
7	- 0,071	- 0,049	- 0,057	- 0,039	- 0,046	- 0,040	- 0,076	- 0,082	- 0,039	- 0,083	- 0,058	0,018	10,20
8	- 0,036	- 0,024	- 0,022	- 0,024	- 0,016	- 0,035	- 0,046	- 0,052	- 0,009	- 0,043	- 0,031	0,014	7,01
9	- 0,041	- 0,074	- 0,057	- 0,049	- 0,041	- 0,040	- 0,031	- 0,017	- 0,049	- 0,008	- 0,041	0,019	6,78
10	+ 0,089	+ 0,061	+ 0,063	+ 0,046	+ 0,074	+ 0,075	+ 0,064	+ 0,063	+ 0,071	+ 0,077	+ 0,068	0,011	18,79
11	+ 0,079	+ 0,056	+ 0,063	+ 0,051	+ 0,044	+ 0,040	+ 0,069	+ 0,083	+ 0,036	+ 0,067	+ 0,059	0,016	11,45
12	+ 0,184	+ 0,056	+ 0,058	+ 0,116	+ 0,059	+ 0,120	+ 0,099	+ 0,133	+ 0,031	+ 0,217	+ 0,107	0,060	5,68
13	+ 0,004	- 0,019	+ 0,013	- 0,014	- 0,011	+ 0,005	+ 0,009	+ 0,028	- 0,014	+ 0,017	+ 0,002	0,016	0,36
14	- 0,066	- 0,044	- 0,037	- 0,039	- 0,036	- 0,045	- 0,061	- 0,057	- 0,029	- 0,053	- 0,047	0,012	12,24
d	+ 0,006	- 0,000	- 0,000	+ 0,003	+ 0,001	+ 0,003	+ 0,000	+ 0,002	+ 0,001	- 0,000	+ 0,003	0,054	
Sd	0,074	0,042	0,048	0,051	0,040	0,051	0,056	0,063	0,032	0,056	0,053		

d = mean of differences Sd = standard deviation of differences t = Student test - comparison to 0

Upper limits : d = +/- 0,045 milimole of BHB / liter of milk
Sd = 0,045 milimole of BHB / liter of milk

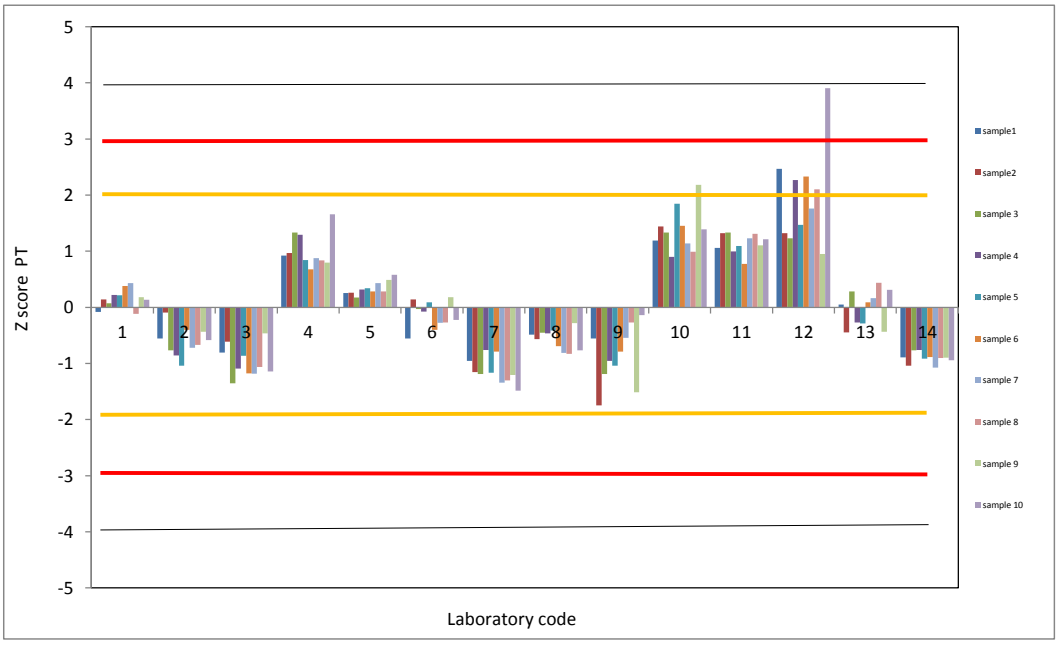
Table VI : **Zscore of the different laboratories for each sample.**
ZS calculated on the PT standard deviation

Sample / Lab code	1	2	3	4	5	6	7	8	9	10
1	-0,08	+0,14	+0,07	+0,22	+0,22	+0,38	+0,43	-0,11	+0,18	+0,13
2	-0,55	-0,09	-0,77	-0,86	-1,04	-0,40	-0,72	-0,67	-0,44	-0,59
3	-0,81	-0,61	-1,36	-1,09	-0,86	-1,18	-1,18	-1,06	-0,47	-1,14
4	+0,92	+0,97	+1,33	+1,29	+0,84	+0,67	+0,88	+0,83	+0,80	+1,66
5	+0,25	+0,26	+0,18	+0,32	+0,34	+0,28	+0,43	+0,28	+0,49	+0,58
6	-0,55	+0,14	-0,03	-0,08	+0,09	-0,40	-0,28	-0,27	+0,18	-0,23
7	-0,96	-1,16	-1,19	-0,76	-1,16	-0,79	-1,34	-1,30	-1,21	-1,48
8	-0,49	-0,57	-0,45	-0,47	-0,41	-0,69	-0,81	-0,83	-0,28	-0,77
9	-0,55	-1,75	-1,19	-0,95	-1,04	-0,79	-0,54	-0,27	-1,51	-0,14
10	+1,19	+1,44	+1,33	+0,90	+1,85	+1,45	+1,14	+0,99	+2,18	+1,39
11	+1,06	+1,32	+1,33	+1,00	+1,09	+0,77	+1,23	+1,31	+1,10	+1,21
12	+2,47	+1,32	+1,23	+2,27	+1,47	+2,33	+1,76	+2,10	+0,95	+3,90
13	+0,05	-0,45	+0,28	-0,27	-0,29	+0,09	+0,17	+0,44	-0,44	+0,31
14	-0,89	-1,04	-0,77	-0,76	-0,91	-0,89	-1,08	-0,91	-0,90	-0,94

In yellow the values bigger or smaller than 2/-2

In red the values bigger or smaller than 3/-3

Figure 2 :
Zscore of the different laboratories for each sample. ZS calculated on the PT standard deviation



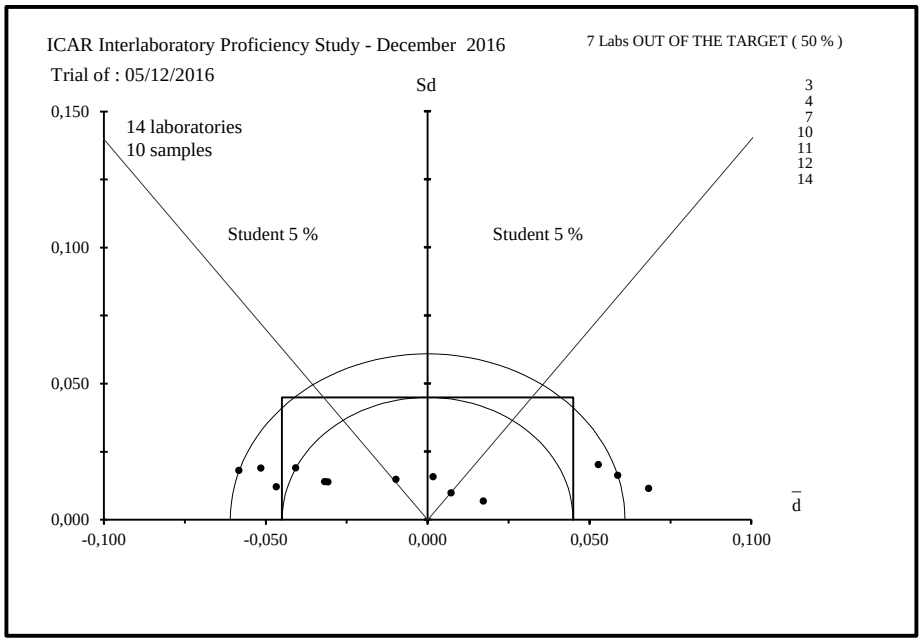


Figure 1 : **ACCURACY - Evaluation of the individual performances (to see table I).**

List of Participants in alphabetical order

RAW MILK

BHB
December 2016

Name	Country
Alip	Portugal
Can West	Canada
Central Milk Testing Lab	Canada
CIS	United Kingdom
Estonian Livestock Performance Recording Ltd	Estonia
Eurofins	Denmark
Horizon Lab Ltd	Canada
Laborator pro rozbor mléka Bustehrad, Ceskomoravská spolecnost chovatelú a.s.	Czech Republic
LIGAL Edificio de Laboratorio Agrarios	Spain
Pacific Milk Analysis	Canada
Qlip	Netherlands
Taiwan Livestock research Insitute	Taiwan
Valacta	Canada

----------End of report----------

ICAR

PROFICIENCY TESTING SCHEME

DECEMBER 2016

Cow Raw Milk

DETECTION of PAG (Pregnancy Associated Glycoproteins)

Sending date of statistical treatment : 10th january 2017

Frame of activity :	ICAR Milk Analyses Sub Committee (MA SC)	
Contact :	Gavin Scott	gavin@milktest.co.nz
ICAR Staff	Silvia Orlandini	pt@icar.org silvia@icar.org

®

Table I: **Methods**

N°	METHOD USED
1	IDEXX
2	IDEXX
3	IDEXX
4	IDEXX
5	IDEXX
6	IDEXX
7	IDEXX
8	IDEXX

Table II : **Laboratory results**

N°	1	2	3	4	5
1	Y	Y	N	Y	N
2	Y	Y	N	Y	N
3	Y	Y	N	Y	N
4	Y	Y	N	Y	N
5	Y	Y	N	Y	N
6	Y	Y	N	Y	N
7	Y	Y	N	Y	N
8	Y	Y	N	Y	N
REF	**Y**	**Y**	**N**	**Y**	**N**

Answers : Y = YES; N = NO; to the questions: Presence of PAG (Pregnancy Associated Glycoproteins)

Table III :

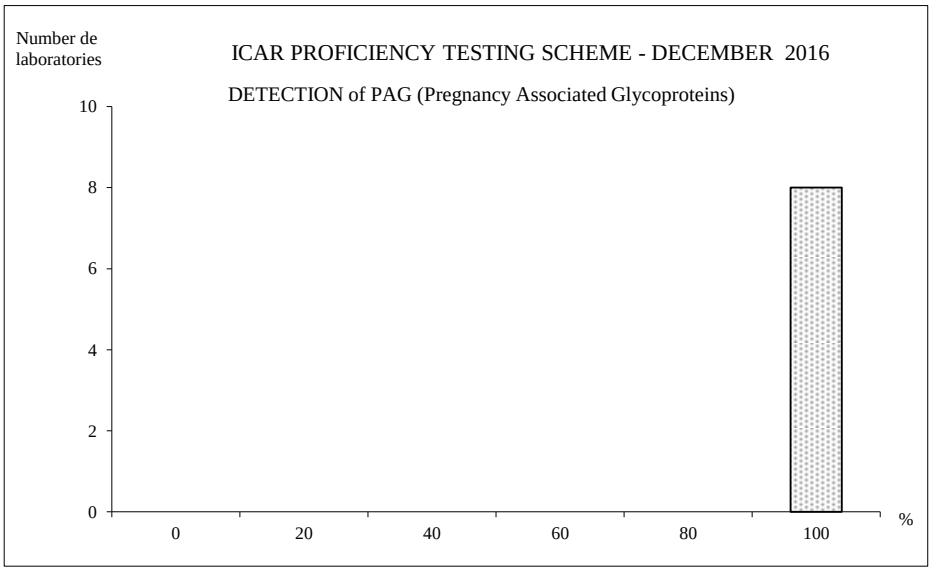
SAMPLES	STRAINS	Date
1	Pregnant - Artificial insemination	28.05.2016
2	Pregnant - Artificial insemination	22.04.2016
3	Non pregnant	—
4	Pregnant - Artificial insemination	18.08.2016
5	Non pregnant	—

Table IV : Laboratory accuracy with respect to correct results

N°	1	2	3	4	5	FLR%
1	T	T	T	T	T	100
2	T	T	T	T	T	100
3	T	T	T	T	T	100
4	T	T	T	T	T	100
5	T	T	T	T	T	100
6	T	T	T	T	T	100
7	T	T	T	T	T	100
8	T	T	T	T	T	100
NSR	8	8	8	8	8	
NS	8	8	8	8	8	
FSR%	100	100	100	100	100	

T : True F : False

NSR : number of right answers per sample and criterion
NS : total number of answers per sample and criterion
FSR% : frequency in right answers per sample and criterion
FLR% : relative frequency in right answers per laboratory



List of Participants in alphabetical order
RAW MILK
PAG
December 2016

Name	Country
Can West	Canada
CIS	United Kingdom
Comité du Lait ASBL	Belgium
Estonian Livestock Performance Recording Ltd	Estonia
Eurofins	Denmark
Qlip	Netherlands
Valacta	Canada

ICAR

PROFICIENCY TESTING SCHEME

DECEMBER 2016

Cow Raw Milk

MICROORGANISM DNA (PCR Technique)

Sending date of statistical treatment : 10th january 2017

Frame of activity :	ICAR Milk Analyses Sub Committee (MA SC)	
Contact :	Gavin Scott	gavin@milktest.co.nz
ICAR Staff	Silvia Orlandini	pt@icar.org silvia@icar.org

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Table I: **Methods**

	METHOD USED in alphabetic order
	DNA Diagnostic - Mastit4 BDF
	DNA Diagnostic - Mastit4 BDF
	Mastit 4 test with Cat. No. M4B. Lot. No.M4B16051, exp. 2016 12
	PathoProof Kit 16
	PCR, PF1600 Thermo Scientific Pathoproof Mastitis Complete-16 assay
	Thermo Scientific - PathoProof C-16
	Thermo Scientific Pathoproof Mastitis Major 4.3

Table II : **Laboratory results**

N°	1	2	3	4	5
1	-	-	+	-	-
2	-	-	+	-	-
3	-	-	+	-	-
4	+	-	+	+	+
5	-	-	+	-	-
6	-	+	+	-	+
7	+	-	+	-	-
MICROORGANISM DNA	**Klebsiella oxytoca**	**Coagulase negative Staphylococci**	**Staphylococci aureus**	**Negative**	**Escherichia coli**
CFU / ml	450	530	790	—	490

Table III :

SAMPLES	STRAINS	LEVEL
1	Klebsiella oxytoca	450 CFU / ml
2	Coagulase negative Staphylococci	530 CFU / ml
3	Staphylococci aureus	790 CFU / ml
4	Negative	—
5	Escherichia coli	490 CFU / ml

Table IV : **Laboratory accuracy with respect to correct results**

The accuiracy table has not been provided because

the PT organizer does not know

all the information on the kit used by the participant

List of Participants in alphabetical order
RAW MILK
DNA Microorganism
December 2016

Name	Country
Allattenyesztesi Teljesitmenyvizsgalo Kft. Hungary	Hungary
Can West	Canada
Comité du Lait ASBL	Belgium
DNA Diagnostic	Denmark
Estonian Livestock Performance Recording Ltd	Estonia
Eurofins	Denmark
Pieno Tyrimai	Lithuania

----------End of report----------