EXPERTISE AND SERVICE PROVISION
QUALITY OF LABORATORIES

EXTERNAL QUALITY ASSESSMENT
IN VETERINARY DIAGNOSIS

DEFINITIVE GLOBAL REPORT
Proficiency Testing in Veterinary Diagnosis
Maedi Visna Virus
Serology
SURVEY 2020/13

Sciensano/PT VET Maedi Visna/1-E

Expertise and service provision
Quality of laboratories
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Authorization to release the report: By Bernard China, scheme coordinator, on 4/02/2021.

Bernard China

All the reports are also available on our webpage:
https://www.wiv-isp.be/QML/activities/PT%20VET/fr/originaux/rapports_annee.htm
https://www.wiv-isp.be/QML/activities/PT%20VET/nl/originaux/rapports_annee.htm

TABLE OF CONTENTS

Introduction

This survey was dedicated to the detection of antibodies specific to Maedi-Visna virus by ELISA.

The samples

The samples were prepared by the National Reference Laboratory, Enzootic, vector-borne and bee diseases, Infectious diseases in animals Directorate, Sciensano.

5 serum samples (0,2 mL) were used: PT2020MAEELINS1, PT2020MAEELINS2, PT2020MAEELIPS1, PT2020MAEELIPS2 and PT2020MAEELIPS3

Homogeneity

The homogeneity of the samples were tested on ten different aliquots by the NRL before the survey using ELITEST IDVET ELISA
The samples were considered as homogeneous.

Target Values

The target value was determined by the NRL based on the homogeneity tests.
PT2020MAEELINS1 and PT2020MAEELINS2 are negative.
PT2020MAEELIPS1and PT2020MAEELIPS2 are positive
PT2020MAEELIPS3 is considered as a doubtful (NEG/POS) sample.

Stability

The stability was determined by comparison of the pre-survey results and the results obtained by the NRL during and after the survey. The samples were considered as stable.

The participants

5 laboratories participated to the Maedi-Visna serological survey
Sciensano ; Arsia , DGZ, Lavetan, LNCR (France).

Randomisation and panel composition

Since a specific number has been assigned to each laboratory, the randomisation has been performed as follow:

	Group 1 97505, 97507 and 97509	Group 2 97508 and 97510.
Sample Order		
MAESER2001	PT2020MAEELINS1	PT20M20AEELIPS3
MAESER2002	PT2020MAEELINS2	PT20M20AEELIPS3
MAESER2003	PT2020MAEELIPS1	PT2020MAEELIPS1
MAESER2004	PT2020MAEELIPS2	PT2020MAEELIPS2
MAESER2005	PT2020MAEELINS2	PT2020MAEELIPS1
MAESER2006	PT2020MAEELINS1	PT2020MAEELIPS2
MAESER2007	PT2020MAEELIPS1	PT2020MAEELINS1
MAESER2008	PT20M20AEELIPS3	PT2020MAEELINS2
MAESER2009	PT20M20AEELIPS3	PT2020MAEELINS1
MAESER2010	PT2020MAEELIPS2	PT2020MAEELINS2
MAESER2011	PT2020MAEELINS2	PT2020MAEELINS1
MAESER2012	PT2020MAEELINS1	PT2020MAEELINS2

The panel was constituted of 12 samples of 0.2 ml

Survey Timeline

Transfer of the samples from NRL to QL:6/11/2020
Randomization of the samples by QL:20/11/2020
Sending samples to participants: 4/11/2020. The samples were sent on dry ice.
Deadline for the results encoding: 24/12/2020
Preliminary report:18/12/2020

Results

1. Serology

The panel consisted 12 serum samples: 4 positive samples, 6 negative samples and 2 doubtful samples.

1.1.Results per sample

5 laboratories encoded results. One laboratory encoded 2 datasets. Therefore, 6 datasets were encoded.

Table R1. Results per sample

Sample ID	Expected result	Number of repetitions (total results)	Observed result
PT2020MAEELINS1	Negative	3 (18)	18 negative results
PT2020MAEELINS2	Negative	3 (18)	18 negative results
PT2020MAEELIPS1	Positive	2(12)	12 Positive results
PT2020MAEELIPS2	Positive	2(12)	12 Positive results
PT2020MAEELIPS3	Negative/positive	2(12)	12 Positive results

Globally, on 72 encoded results, 100% were considered as correct.

Interestingly, all the participant considered the T2020MAEELIPS3 sample as positive.

1.2.Used methods

IDvet-ID Screen MVV/CAEV Indirect:	2
HYPHEN BIOMED-ELITEST MVV/CAEV	3
LIFE TECHNOLOGIES-Ruminant MAEDI-VISNA/CAEV serum LSI:	1

The laboratory encoding 2 datasets used IDVET and Hyphen kits.

1.3.Conclusion

All the participants encoded correct results independently of the used method.
The sample PT2020MAEELIPS3 proposed by the NRL as doubtful was found as positive by all the participants and all the methods.

ANNEXES

Annex 1.Quantitative data for Maedi-Visna serology (not under accreditation)

SAMPLE PT2020MAEELINS1

Table A1. Quantitative normalized values (%)

Lab	97505	97507	97508	97509-1	97509-2	97510
Method	IDvet-ID Screen MVV/CAEV Indirect	HYPHEN BIOMED ELITEST MVV/CAEV	HYPHEN BIOMED ELITEST MVV/CAEV	IDvet-ID Screen MVV/CAEV Indirect	HYPHEN BIOMED ELITEST MVV/CAEV	LIFE TECHNOLOGIES Ruminant MAEDI-VISNA/CAEV serum LSI
R1	0.88	-0.053	-1.527	9.016	0.278	2.326
R2	1.12	-0.024	-1.045	8.782	0.081	0.000
R3	1.75	-0.022	-0.723	6.206	0.152	4.472
mean	1.25	-0.03	-1.10	8.00	0.17	2.27
SD	0.45	0.02	0.40	1.56	0.10	2.24
CV	36.3%	-52.9%	-36.8%	19.5%	58.6%	98.7%

Rn= repetition n

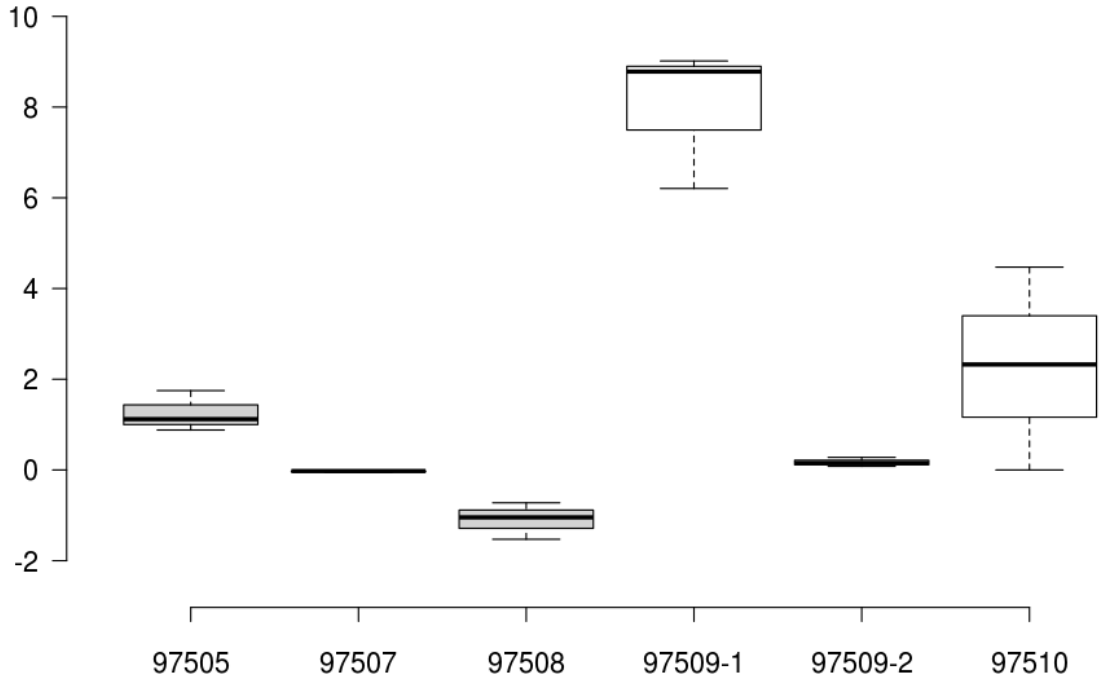


Figure A1. Boxplot dispersion of the results per participant for the sample NS1

SAMPLE PT2020MAEELINS2

Table A2. Quantitative normalized values (%)

Lab	97505	97507	97508	97509-1	97509-2	97510
Method	IDvet-ID Screen MVV/CAEV Indirect	HYPHEN BIOMED ELITEST MVV/CAEV	HYPHEN BIOMED ELITEST MVV/CAEV	IDvet-ID Screen MVV/CAEV Indirect	HYPHEN BIOMED ELITEST MVV/CAEV	LIFE TECHNOLOGIES Ruminant MAEDI-VISNA/CAEV serum LSI
R1	1.44	-0.069	-1.527	8.431	0.060	0.000
R2	1.44	-0.061	-1.688	6.440	0.109	0.000
R3	2.39	-0.051	-1.688	8.197	0.202	21.170
mean	1.75	-0.06	-1.63	7.69	0.12	7.06
SD	0.55	0.01	0.09	1.09	0.07	12.22
CV	31.5%	-15.3%	-5.7%	14.1%	58.3%	173.2%

Rn= repetition n

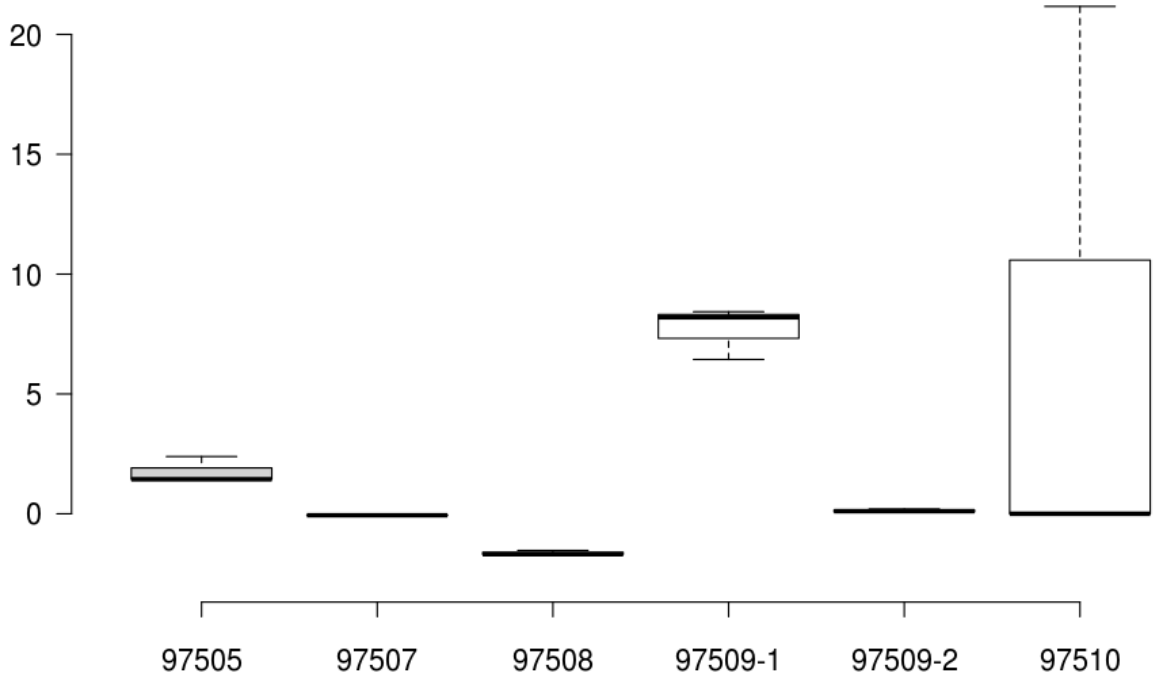


Figure A2. Boxplot dispersion of the results per participant for the sample NS2

Table A3. Quantitative normalized values (%)

Lab	97505	97507	97508	97509-1	97509-2	97510
Method	IDvet-ID Screen MVV/CAEV Indirect	HYPHEN BIOMED ELITEST MVV/CAEV	HYPHEN BIOMED ELITEST MVV/CAEV	IDvet-ID Screen MVV/CAEV Indirect	HYPHEN BIOMED ELITEST MVV/CAEV	LIFE TECHNOLOGIES Ruminant MAEDI-VISNA/CAEV serum LSI
R1	340.99	2.865	347.830	400.937	2.917	39.420
R2	336.76	2.864	356.511	400.937	2.796	38.100
mean	338.88	2.86	352.17	400.94	2.86	38.76
SD	2.99	0.00	6.14	0.00	0.09	0.93
CV	0.9%	0.0%	1.7%	0.0%	3.0%	2.4%

Rn= repetition n

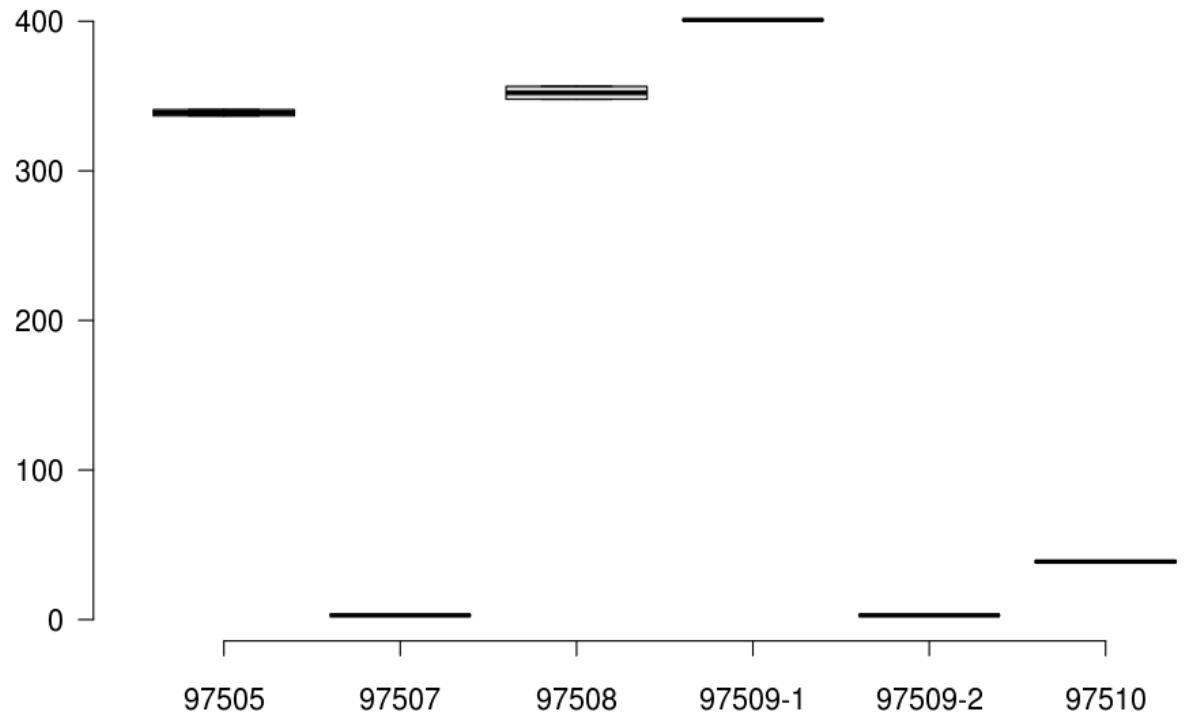


Figure A2. Boxplot dispersion of the results per participant for the sample PS1

SAMPLE PT2020MAEELIPS2

Table A4. Quantitative normalized values (%)

Lab	97505	97507	97508	97509-1	97509-2	97510
Method	IDvet-ID Screen MVV/CAEV Indirect	HYPHEN BIOMED ELITEST MVV/CAEV	HYPHEN BIOMED ELITEST MVV/CAEV	IDvet-ID Screen MVV/CAEV Indirect	HYPHEN BIOMED ELITEST MVV/CAEV	LIFE TECHNOLOGIES Ruminant MAEDI-VISNA/CAEV serum LSI
R1	311.40	2.382	264.550	400.937	2.493	69.470
R2	299.84	2.538	284.486	389.578	2.454	65.410
mean	305.62	2.46	274.52	395.26	2.47	67.44
SD	8.18	0.11	14.10	8.03	0.03	2.87
CV	2.7%	4.5%	5.1%	2.0%	1.1%	4.3%

Rn= repetition n

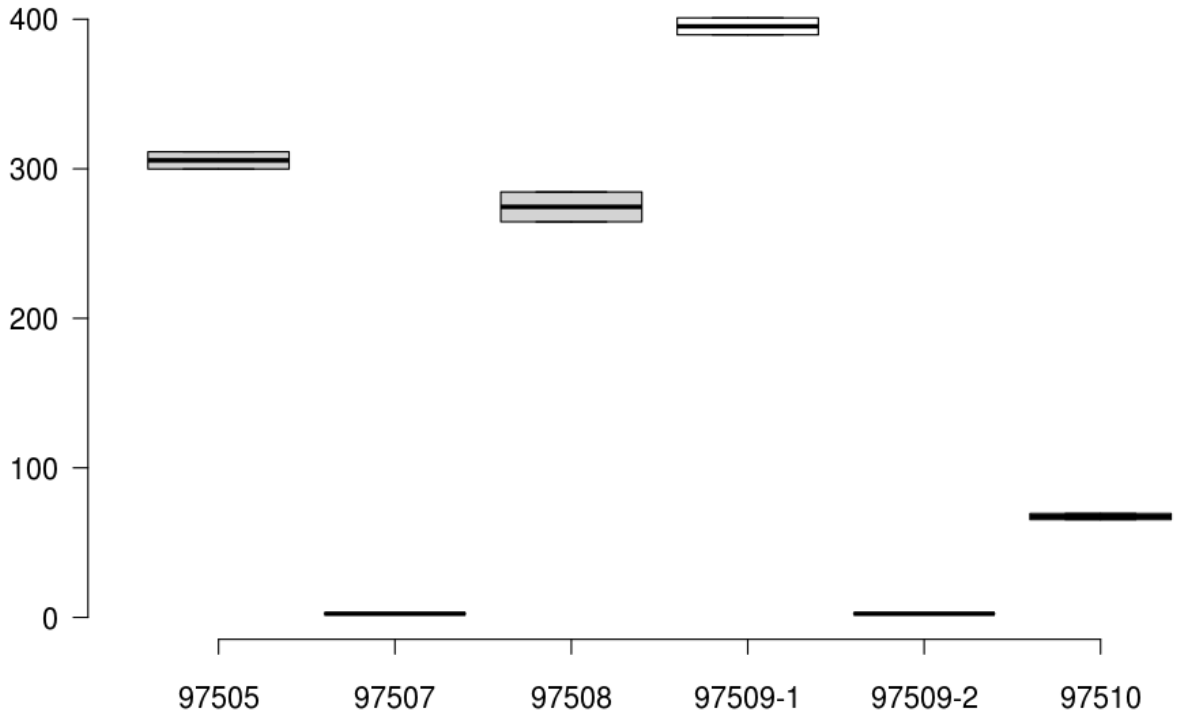


Figure A2. Boxplot dispersion of the results per participant for the sample PS2

SAMPLE PT2020MAEELIPS3

Table A5. Quantitative normalized values (%)

Lab	97505	97507	97508	97509-1	97509-2	97510
Method	IDvet-ID Screen MVV/CAEV Indirect	HYPHEN BIOMED ELITEST MVV/CAEV	HYPHEN BIOMED ELITEST MVV/CAEV	IDvet-ID Screen MVV/CAEV Indirect	HYPHEN BIOMED ELITEST MVV/CAEV	LIFE TECHNOLOGIES Ruminant MAEDI-VISNA/CAEV serum LSI
R1	308.61	1.124	88.183	389.578	1.938	86.760
R2	312.12	1.041	86.093	398.009	2.041	86.400
mean	310.37	1.08	87.14	393.79	1.99	86.58
SD	2.48	0.06	1.48	5.96	0.07	0.25
CV	0.8%	5.4%	1.7%	1.5%	3.7%	0.3%

Rn= repetition n

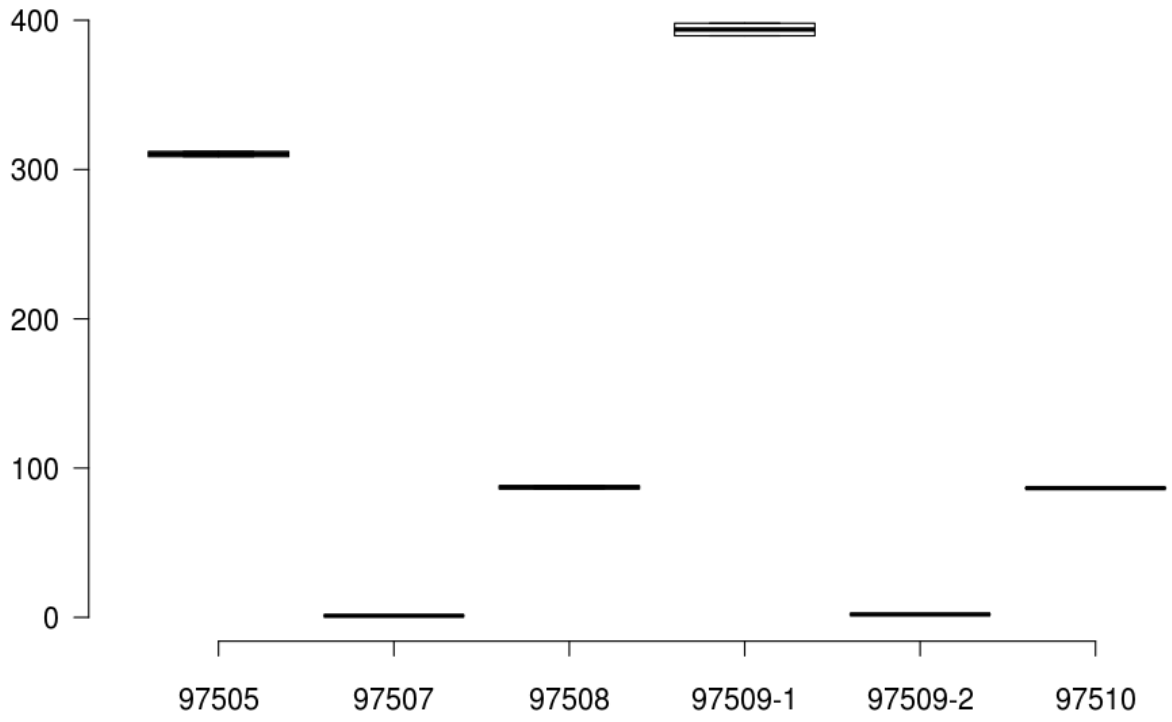


Figure A2. Boxplot dispersion of the results per participant for the sample PS3

Annex 2: additional information

PRELIMINARY REPORT

The preliminary report of this survey is available on our website via the following link:

https://www.wiv-isp.be/QML/activities/PT%20VET/fr/originaux/rapports_annee.htm

The calendar for Proficiency Testing in Veterinary diagnosis is available on our website:

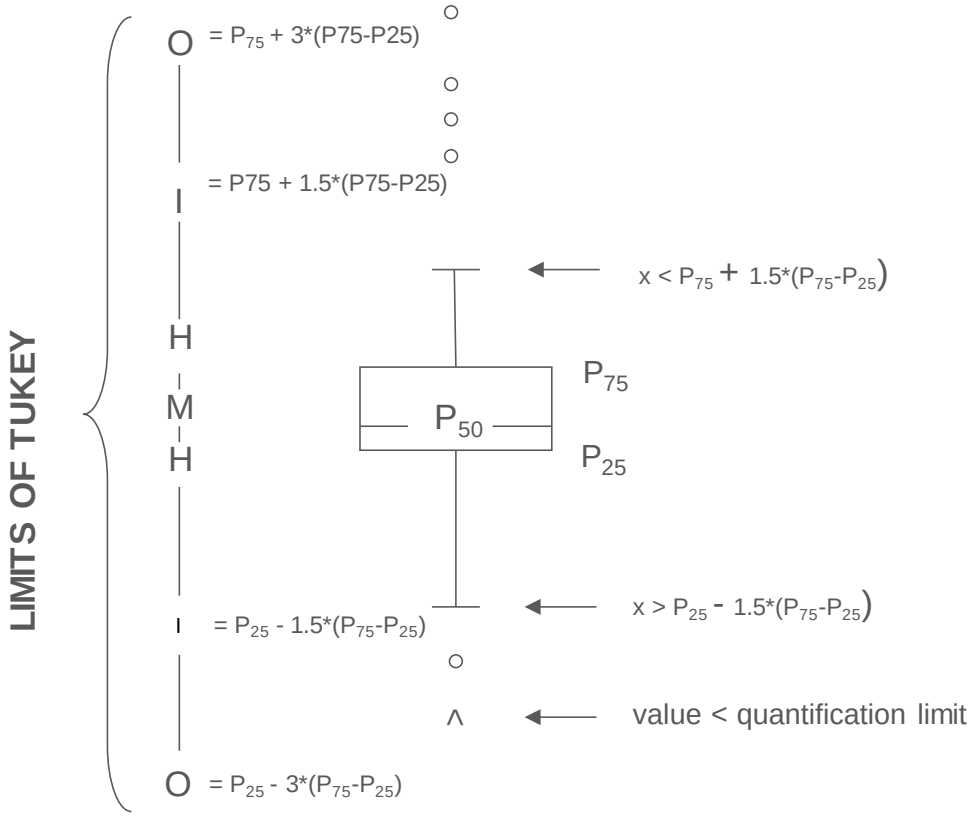
The link is:

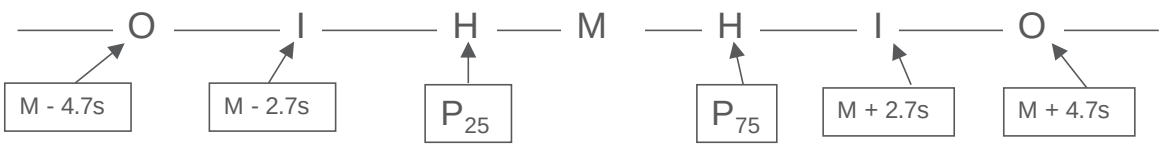
https://www.wiv-isp.be/QML/activities/external_quality/calendar/calender_PT%20VET/_fr/Calendrier_2020-PT%20VET%202.htm

Graphical representation

Besides the tables with the results a "Box and whisker" plot is added. It contains the following elements for the methods with at least 6 participants:

- a rectangle ranging from percentile 25 ($\mathbf{P_{25}}$) to percentile 75 ($\mathbf{P_{75}}$)
- a central line representing the median of the results ($\mathbf{P_{50}}$)
- a lower limit showing the smallest value $\mathbf{x > P_{25} - 1.5 * (P_{75} - P_{25})}$
- an upper limit representing the largest value $\mathbf{x < P_{75} + 1.5 * (P_{75} - P_{25})}$
- all points outside this interval are represented by a dot.





Corresponding limits in case of normal distribution

END