

**EXPERTISE AND SERVICE PROVISION  
QUALITY OF LABORATORIES**

**EXTERNAL QUALITY ASSESSMENT  
IN VETERINARY MEDICINE**

**Definitive GLOBAL REPORT**

**Veterinary Medicine  
Chronic Respiratory Disease (CRD)  
SURVEY 2021/11**

**Sciensano/PT VET/CRD/1-E**

Expertise and service provision  
Quality of laboratories  
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A preliminary version of this report was submitted to the experts on: 06/01/2022

**Authorization to release the report:** By Bernard China (scheme coordinator) and Ynse Van de Maele (scheme coordinator in formation) on 14/01/2022.



*Bernard China*

All the reports are also available on our webpage:

[https://www.wiv-isp.be/QML/activities/external\\_quality/rapports/ nl/rapports\\_annee.htm](https://www.wiv-isp.be/QML/activities/external_quality/rapports/ nl/rapports_annee.htm)

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## **INTRODUCTION**

This survey was dedicated to the detection of the causative agent of the Chronic Respiratory Disease (CRD), i.e. *Mycoplasma gallisepticum*, in swab by Real-time Polymerase Chain Reaction (RT-PCR).

The samples were prepared by the National Reference Laboratory (NRL) *Mycoplasma* spp., Veterinary Bacteriology Service, Infectious diseases in animals Directorate, Sciensano.

### **Bacteriology**

#### **Samples**

Three different samples were used: PT2021CRDBACPSW1, PT2021CRDBACPSW2 and PT2021CRDBACNSW1. The samples were prepared as follows: sterile swabs were spiked with poultry DNA and with either a pure culture of *M. gallisepticum* (PT2021CRDBACPSW1), or a 100-fold dilution of the pure culture of *M. gallisepticum* (PT2021CRDBACPSW2) or SP4-Z culture medium (PT2021CRDBACNSW1). The reference swab samples were lyophilized directly after their preparation.

#### **Homogeneity**

The homogeneity of the samples was tested by the NRL before the survey. The samples were considered homogeneous.

#### **The participants**

Three laboratories participated to the Bacteriology survey: Sciensano (Uccle), ARSIA (Ciney), DGZ (Torhout).

#### **Target Values**

The target values were determined by the NRL based on the homogeneity tests.

- PT2021CRDBACPSW1 and PT2021CRDBACPSW2 are considered positive.
- PT2021CRDBACNSW1 is considered negative.

#### **Stability**

The samples were tested before and after the survey. The results were compared and the samples were considered as stable.

#### **Randomisation and panel composition**

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

<b>Laboratory</b>	<b>97504</b>	<b>97507</b>	<b>97508</b>
<b>Sample ID</b>			
CRDBAC21-1	PSW1	PSW1	PSW1
CRDBAC21-2	NSW1	PSW2	NSW1
CRDBAC21-3	PSW1	NSW1	NSW1
CRDBAC21-4	PSW2	PSW1	PSW1
CRDBAC21-5	NSW1	NSW1	PSW2

*The panel consisted of 5 samples.*

## **Survey timeline**

Transfer of the samples from NRL to QL: 05/10/2021

Randomization of the samples by QL: 07/10/2021

Sending samples (at room temperature) to participants: 11/10/2021

Deadline for the results encoding: 05/11/2021

Preliminary report: 22/11/2021

## **RESULTS**

The panel consisted of 3 different samples, but samples PSW1 and NSW1 were repeated twice. Therefore, the panel consisted of 5 samples: 3 positive and 2 negative.

### **Results per sample**

<b>Sample ID</b>	<b>Status</b>	<b>Number of repetitions (total results)</b>	<b>Observed result</b>
PSW1	POS	2 (6)	6 POS
PSW2	POS	1 (3)	3 POS
NSW1	NEG	2 (6)	6 NEG

Globally, on 15 encoded results, 15/15 (100%) were correct.

### **Used method**

<b>Method</b>	<b>N</b>	<b>NR</b>	<b>NCR</b>	<b>%</b>
RT-qPCR (Thermofisher - VetMAX™ Avian M. gallisepticum & M. synoviae Kit)	3	15	15	100

(NR = number of results; NCR = number of correct results)

### **Extraction method**

<b>Method</b>	<b>N</b>
MagAttract Cador Pathogen Kit (QIAGEN)	1
IndiMag Pathogen Kit (Indical)	1
QIAmp DNA mini Kit (QIAGEN)	1
TOTAL	3

### **Conclusion**

The participants obtained an 100% of success in this survey.

## **ANNEXES (NOT UNDER ACCREDITATION)**

The boxplots were performed using the [shiny.chemgrid.org/boxplotr/](https://shiny.chemgrid.org/boxplotr/) software

### **Annex 1: Quantitative results**

**Sample: PT2021CRDBACPSW1**

	<b>97504</b>	<b>97507</b>	<b>97508</b>
<b>Rep 1</b>	18.9	22.59	17.78
<b>Rep 2</b>	19.66	22.53	17.23
<b>Average</b>	19.28	22.56	17.505
<b>SD</b>	0.537	0.042	0.389
<b>CV</b>	2.8%	0.2%	2.2%

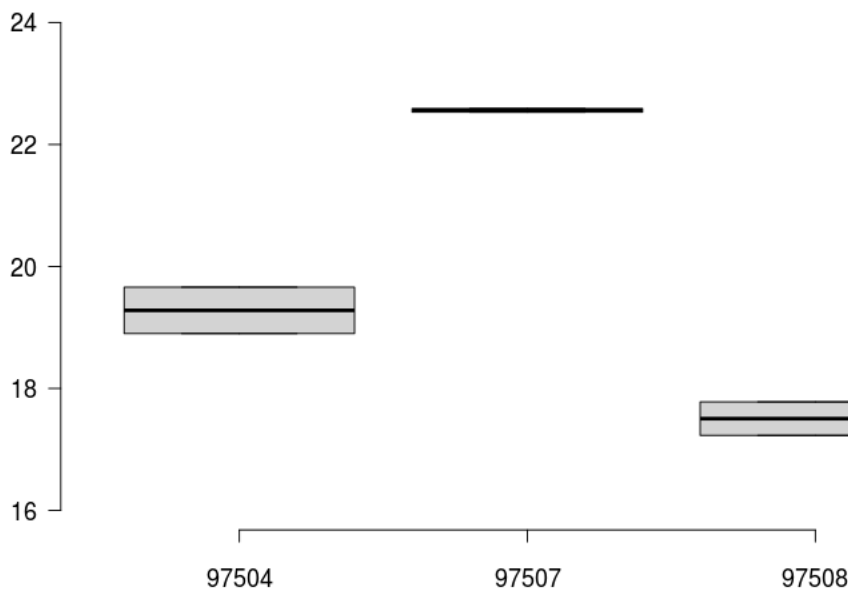


Figure A1. Dispersion of the Ct values (box-plots) per laboratory.

### **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](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:

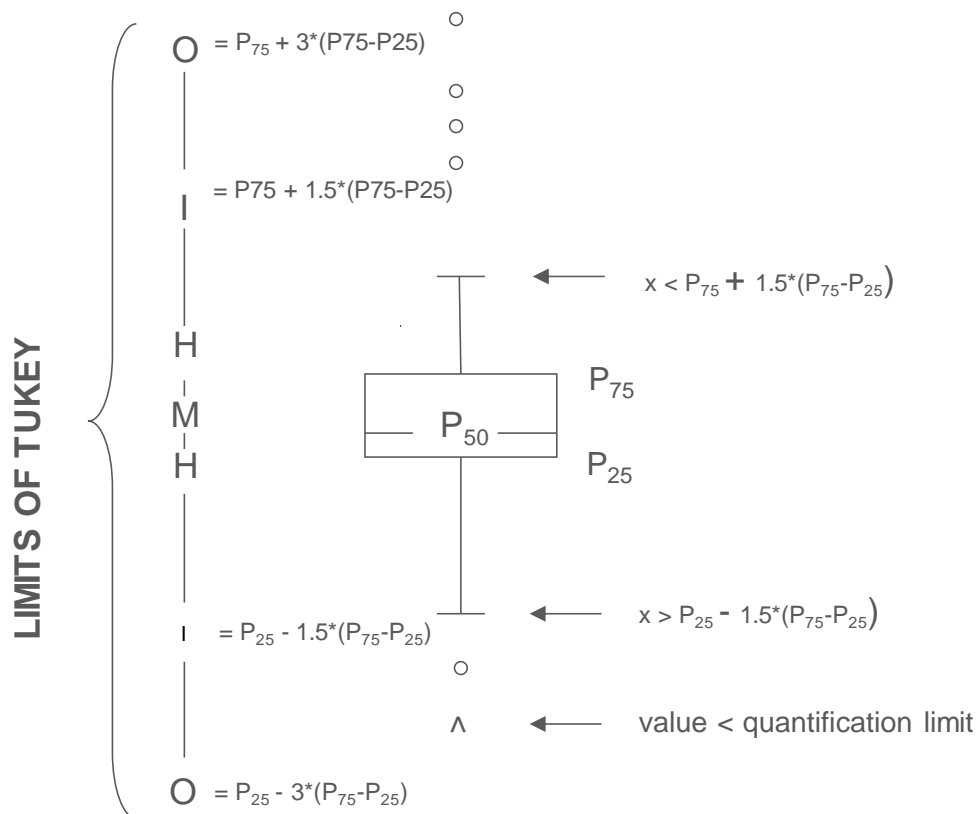
The link is:

[https://www.wivisp.be/QML/activities/external\\_quality/calendar/calender\\_PT%20VET/fr/Calendrier\\_2020-PT%20VET%202.htm](https://www.wivisp.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 33 participants:

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



### Corresponding limits in case of normal distribution

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