

NF VALIDATION
Validation of alternative analytical methods
Application in food microbiology

Summary Report

Validation study according to the EN ISO 16140-2:2016

RealPCR* *Salmonella* spp. DNA test

(Certificate number: IDX 33/10-12/22)

**for the detection of *Salmonella* spp. in raw poultry meats, poultry
environmental production samples
and poultry primary production samples**

Qualitative method

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This report consists of 67 pages, including 7 appendices.

Only copies including the totality of this report are authorised.

Competencies of the laboratory are certified by COFRAC accreditation for the analyses marked with the symbol♦.

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Quality Assurance documents related to this study can be consulted upon request from **IDEXX B.V.**

The technical protocol and the result interpretation were realised according to the EN ISO 16140-2:2016 and the AFNOR technical rules (PR Revision 7).

Validation protocols	<ul style="list-style-type: none"> ▪ EN ISO 16140-1 (June 2016): Microbiology of the food chain - Method validation - <i>Part 1: Vocabulary</i> ▪ EN ISO 16140-2 (June 2016): Microbiology of the food chain - Method validation - <i>Part 2: Protocol for the validation of alternative (proprietary) methods against a reference method</i> ▪ AFNOR Technical Rules (PR Rev 7)
Reference methods[♦]	<ul style="list-style-type: none"> ▪ EN ISO 6579-1 (February 2017): Microbiology of the food chain - Horizontal method for the detection, enumeration and serotyping of <i>Salmonella</i> spp. - Part 1: detection of <i>Salmonella</i> spp. ▪ ISO 6579-1/A1 (March 2020): Microbiology of the food chain - Horizontal method for the detection, enumeration and serotyping of <i>Salmonella</i> spp. - Part 1: detection of <i>Salmonella</i> spp. Amendment 1: Broader range of incubation temperatures, amendment to the status of Annex D, and correction of the composition of MSRV and SC
Alternative method	RealPCR* <i>Salmonella</i> spp. DNA test
Scope	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Raw poultry meats <input checked="" type="checkbox"/> Poultry environmental production samples <input checked="" type="checkbox"/> Poultry primary production samples
Certification organism	AFNOR Certification (http://nf-validation.afnor.org/)

[♦] Analyses performed according to the COFRAC accreditation

1 INTRODUCTION

The RealPCR* *Salmonella* spp. DNA test was validated in December 2022 for raw poultry meats, poultry environmental production samples and poultry primary production samples a broad range of foods (Certificate number: IDX 33/10-12/22).

2 METHOD PROTOCOLS

2.1 Alternative method

The flow diagram of the alternative method is provided in **Appendix 1**.

2.1.1 Principle

The RealPCR* *Salmonella* spp. DNA Test Kit detects the presence of DNA from *Salmonella* spp. in raw poultry meats, poultry environmental production and primary production samples.

Primers and probes are specific for *Salmonella* spp.; the probe is labelled with a specific fluorophore which is detected in a designated channel on the qPCR thermocycler. After extraction of the Nucleic Acids, samples are added to plates along with the dedicated Reaction Mix. The prepared wells are placed in the qPCR cyclor for amplification and detection.

The PCR results are interpreted as follows:

PCR validation criteria

	FAM Ct value	HEX (VID) Ct value
Positive control	< 38	< 38
Negative control	No signal	< 36

Result interpretation

FAM Ct value	HEX (VID) Ct value	Sample result
< 40	Yes or No	+
≥ 40	< 36	-
≥ 40	≥ 36	Invalid

2.1.2 Protocol

The following steps are applied:

- Enrichment in Buffered Peptone Water (BPW) for 16 - 20 h at 34 - 38°C. For primary production samples (PPS), subculture in MKTTn (1 mL + 10 mL) for 24 h ± 3 h at 41.5 °C ± 1 °C
- DNA extraction on 500 µL enriched BPW (food and environmental production samples) or MKTTn for PPS
- PCR on 5 µL DNA extract using 2 thermocyclers
 - Bio-Rad CFX96
 - Bio Molecular Systems Mic qPCR (BMS Mic qPCR)
- Confirmation using the protocol of the ISO 6579-1 method.

2.1.3 Restrictions

There is no restriction.

2.2 Reference method♦

The reference methods used for this study were the following:

- The ISO 6579-1 (February 2017) - Microbiology of the food chain - Horizontal method for the detection, enumeration and serotyping of *Salmonella* spp. - Part 1: detection of *Salmonella* spp.
- The ISO 6579-1/A1 (March 2020): Microbiology of the food chain - Horizontal method for the detection, enumeration and serotyping of *Salmonella* spp. - Part 1: detection of *Salmonella* spp. Amendment 1: Broader range of incubation temperatures, amendment to the status of Annex D, and correction of the composition of MSR/V and SC.

The flow diagram is given in **Appendix 2**.

2.3 Study design

The study is a **paired study design** as the reference and alternative method have a common enrichment step.

3 METHOD COMPARISON STUDY

The method comparison study is a study performed by the expert laboratory to compare the alternative method with the reference method.

The study was carried out on a diversity of samples and strains representative of agri-food products. This does not constitute an exhaustive list of the different matrices included in the scope.

For any comment on the alternative method, please contact AFNOR Certification at <http://nf-validation.afnor.org/contact-2/>.

Two thermocyclers are covered by the scope of the alternative method:

- Tested by ADRIA Développement:

- Bio-Rad CFX96

- Tested by IDEXX:

- BMS Mic qPCR
- The tests were done with both of them. One lysate was prepared for each sample. The lysate was split in 2 x 75 µl in order to have one tube per thermocycler. One tube was kept by ADRIA who performed PCR tests using the CFX96 from Bio-Rad. The other tubes (blind coded) were sent to IDEXX which run the tests on the BMS Mic qPCR.

3.1 Sensitivity study

The sensitivity (SE) is the ability of the method to detect the analyte by either the reference or alternative method.

3.1.1 Number and nature of samples

151 samples were analysed for raw poultry meats and poultry environmental production samples, 88 for primary production samples providing, for all categories combined, providing 93 positive and 146 negative results for the Bio-Rad CFX96, 91 positive and 148 negative results for the IDEXX/BMS Mic qPCR system.

The distribution per tested category and type is given in Table 1.

Table 1 – Distribution per tested category and type

Bio-Rad CFX96						
Category		Type		Positive	Negative	Total
1	Raw poultry meats (25 g)	a	Chilled meat	10	21	31
		b	Frozen meat	9	11	20
		c	Seasoned meat	12	11	23
		Total		31	43	74
2	Poultry environmental production samples	a	Dusts and residues	9	12	21
		b	Cleaning and process waters	11	10	21
		c	Surface samples	12	23	35
		Total		32	45	77
3	Poultry primary production samples (PPS)	a	Animal faeces	15	21	36
		b	Environmental samples and non-faeces	15	37	52
		Total		30	58	88
All categories				93	146	239

BMS Mic qPCR						
Category		Type		Positive	Negative	Total
1	Raw poultry meats (25 g)	a	Chilled meat	10	21	31
		b	Frozen meat	9	11	20
		c	Seasoned meat	11	12	23
		Total		30	44	74
2	Poultry environmental production samples	a	Dusts and residues	9	12	21
		b	Cleaning and process waters	11	10	21
		c	Surface samples	11	24	35
		Total		31	46	77
3	Poultry primary production samples (PPS)	a	Animal faeces	15	21	36
		b	Environmental samples and non-faeces	15	37	52
		Total		30	58	88
All categories				91	148	239

3.1.2 Artificial contamination of samples

Artificial contaminations were done by seeding protocol. The artificial contaminations are presented in **Appendix 3**.

For primary production samples, the strain was inoculated in the matrix and the samples was then stored for 24 h at ambient temperature.

127 samples were artificially contaminated, using 38 different strains. 86 gave a positive result.

For raw poultry meats and poultry environmental production samples, 44 samples (70%) were inoculated at level ≤ 3 CFU and 12 samples (19%) were inoculated between 3 and 10 CFU.

For primary production samples, 19 samples (63%) were inoculated at level ≤ 3 CFU and 11 samples (37%) were inoculated between 3 and 10 CFU. This high percentage of samples inoculated between 3 and 10 CFU is due to the high number of negative results observed with an inoculation lower than 3 CFU. 36 samples were inoculated at level ≤ 3 CFU and 17 gave negative results.

Taking into account all the categories, 25% of the samples were inoculated between 3 and 10 CFU.

The repartition of the positive samples per inoculation protocol and inoculation level is given in Table 2.

Table 2 - Repartition of the positive samples per inoculation protocol and inoculation level

	Naturally contaminated	Artificially contaminated			Total
		Seeding protocol			
		≤ 3 CFU	$3 < x \leq 10$ CFU	$10 < x < 30$ CFU	
Cat 1-2	7	44	12	0	63
	11%	70%	19%	0%	100%
Cat 3 (PPS)	0	19	11	0	30
	0%	63%	37%	0%	100%
Total with PPS	7	63	23	0	93
	8%	68%	25%	0%	100%

11% % of the raw poultry meats and poultry environmental production samples were naturally contaminated. No naturally contaminated samples were observed for primary production samples despite the fact that non-inoculated samples were tested.

Taking into account all the categories, 8 % of the samples were naturally contaminated.

3.1.3 Protocols applied during the validation study

> PCR platforms tested

- Bio-Rad CFX96: software CFX Maestro Version 5.0.021.0616
- BMS Mic qPCR PCR, softwareV2.10.1

> **Incubation times**

The minimum incubation time was applied:

- For enrichment step in BPW: 16 h at 34°C - 38°C;
- For confirmation:
 - Selective enrichment (RVS or MSRV or MKTTN): 21 h
 - Selective Agar plates: 21 h

> **Confirmation protocols**

As it is a paired study design, the confirmation using the protocol of the ISO 6579-1 method was available for all the samples as required by the ISO 16140-2 (2016) standard.

For food and production environment samples:

- Subculture in RVS for 24 h ± 3 h at 41.5°C;
- Subculture in MKTTn for 24 h ± 3 h at 34-38°C ± 1°C.
- Streaking onto XLD (24 h ± 3 h at 34 - 38°C) and ASAP plates (24 h ± 3 h at 37 ± 1°C)

For primary production samples:

- Subculture on MSRV for 2 x 24 h ± 3 h at 41.5 °C ± 1°C;
- Subculture in MKTTn for 24 h ± 3 h at 41.5°C ± 1°C (broth used for the PCR test);
- Streaking onto XLD (24 h ± 3 h at 34 - 38°C) and ASAP (24 h ± 3 h at 37 ± 1°C)

3.1.4 Test results

Raw data per category are given in **Appendix 4**. The results are given in Table 3.

Table 3 – Interpretation of sample results between the reference and alternative method (based on the confirmed alternative method results)

Bio-Rad CFX96								
Category		PA	NA*	PD	ND**	PPND	PPNA	Total
1	Raw poultry meats (25 g)	28	43	1	2	0	0	74
2	Poultry environmental production samples	28	45	1	3	0	0	77
3	Poultry primary production samples (PPS)	28	55	1	1	0	3	88
All categories		84	143	3	6	0	3	239

BMS Mic qPCR								
Category		PA	NA*	PD	ND**	PPND	PPNA	Total
1	Raw poultry meats (25 g)	28	44	0	2	0	0	74
2	Poultry environmental production samples	29	46	0	2	0	0	77
3	Poultry primary production samples (PPS)	28	58	1	1	0	0	88
All categories		85	148	1	5	0	0	239

* PPNA not included

** PPND not included

3.1.5 Calculation of relative trueness (RT), sensitivity (SE) and false positive ratio (FPR)

The calculations are presented in Table 4.

Table 4 – Calculation of the relative trueness (RT), the sensitivity (SE) and the false positive ratio (FPR)

Bio-Rad CFX96													
Category		Type	PA	NA*	PD	ND**	PPND	PPNA	SE _{alt}	SE _{ref}	RT	FPR	
1	Raw poultry meats (25 g)	a	Chilled meat	10	21	0	0	0	100,0%	100,0%	100,0%	0,0%	
		b	Frozen meat	9	11	0	0	0	100,0%	100,0%	100,0%	0,0%	
		c	Seasoned meat	9	11	1	2	0	0	83,3%	91,7%	87,0%	0,0%
		Total		28	43	1	2	0	0	93,5%	96,8%	95,9%	0,0%
2	Poultry environmental production samples	a	Dusts and residues	6	12	0	3	0	66,7%	100,0%	85,7%	0,0%	
		b	Cleaning and process waters	11	10	0	0	0	100,0%	100,0%	100,0%	0,0%	
		c	Surface samples	11	23	1	0	0	0	100,0%	91,7%	97,1%	0,0%
		Total		28	45	1	3	0	0	90,6%	96,9%	94,8%	0,0%
3	Poultry primary production samples (PPS)	a	Animal faeces	14	19	1	0	0	2	100,0%	93,3%	97,2%	9,5%
		b	Environmental samples and non-faeces	14	36	0	1	0	1	93,3%	100,0%	98,1%	2,7%
		Total		28	55	1	1	0	3	96,7%	96,7%	97,7%	5,2%
All categories			84	143	3	6	0	3	93,5%	96,8%	96,2%	2,1%	

BMS Mic qPCR													
Category		Type	PA	NA*	PD	ND**	PPND	PPNA	SE _{alt}	SE _{ref}	RT	FPR	
1	Raw poultry meats (25 g)	a	Chilled meat	10	21	0	0	0	100,0%	100,0%	100,0%	0,0%	
		b	Frozen meat	9	11	0	0	0	100,0%	100,0%	100,0%	0,0%	
		c	Seasoned meat	9	12	0	2	0	0	81,8%	100,0%	91,3%	0,0%
		Total		28	44	0	2	0	0	93,3%	100,0%	97,3%	0,0%
2	Poultry environmental production samples	a	Dusts and residues	7	12	0	2	0	77,8%	100,0%	90,5%	0,0%	
		b	Cleaning and process waters	11	10	0	0	0	0	100,0%	100,0%	100,0%	0,0%
		c	Surface samples	11	24	0	0	0	0	100,0%	100,0%	100,0%	0,0%
		Total		29	46	0	2	0	0	93,5%	100,0%	97,4%	0,0%
3	Poultry primary production samples (PPS)	a	Animal faeces	14	21	1	0	0	100,0%	93,3%	97,2%	0,0%	
		b	Environmental samples and non-faeces	14	37	0	1	0	0	93,3%	100,0%	98,1%	0,0%
		Total		28	58	1	1	0	0	96,7%	96,7%	97,7%	0,0%
All categories			85	148	1	5	0	0	94,5%	98,9%	97,5%	0,0%	

* PPNA not included

** PPND not included

A summary of the results is given in Table 5.

Table 5 - Summary of results

		Bio-Rad CFX96	BMS Mic qPCR
Sensitivity for the alternative method	$SE_{alt} = \frac{(PA + PD)}{(PA + ND + PD)} \times 100\%$	93.5 %	94.5 %
Sensitivity for the reference method	$SE_{ref} = \frac{(PA + ND)}{(PA + ND + PD)} \times 100\%$	96.8 %	98.9 %
Relative trueness	$RT = \frac{(PA + NA)}{N} \times 100\%$	96.2 %	97.5 %
False positive ratio for the alternative method* FP = PPNA + PPND	$FPR = \frac{(FP)}{NA} \times 100\%$	2.1 %	0.0 %

With $ND = ND + PPND$
 $NA = NA + PPNA$

3.1.6 Analysis of discordant results

The negative deviations are given in Table 6 and the positive deviations in Table 7.

> **Negative deviations**

Six negative deviations were observed using the Bio-Rad CFX96 PCR platform and five with the BMS Mic qPCR.

For all the samples, the presence of *Salmonella* was confirmed in the enrichment broth. When a negative deviation was observed, a total of three PCR were carried out and, in some cases, one of the replicates was positive with late Ct value (samples 2814, 4442, 4482 for the Bio-Rad CFX96).

These results show that the contamination level was just at the limit of detection of the IDEXX method.

> **Positive deviations**

Three positive deviations were observed with the Bio-Rad CFX96 platform and one with the BMS Mic qPCR. All the samples were artificially contaminated. Note that more positive deviations were observed with the Bio-Rad CFX96; this could be explained by the fact that DNA extracts were tested just after lysis step with this cyclor while they were tested with the second cyclor few months later.

Table 6 - Negative deviations

Date of analysis	N° Sample	Product (French name)	Product	Artificial contaminations		Reference method: ISO 6579-1*	Alternative method: IDEXX Salmonella Species DNA Test Kit											Category	Type
				Strain	Inoculation level (CFU/sample)		PCR						Confirmatory tests (ISO 6579-1)	Final result		Agreement			
							Bio-Rad CFX96			BMS Mic qPCR				Bio-Rad CFX96	BMS Mic qPCR	Bio-Rad CFX96	BMS Mic qPCR		
							Cq (FAM)	Cq (HEX)	Result	Cq (FAM)	Cq (HEX)	Result							
2021	1546	Saucisses nature de volaille bio	Poultry sausages	S. Enteritidis Ad2525	2,2	+	No Ct/No Ct/No Ct	30.23/28.41/29.52	-/-	No Ct/No Ct/No Ct	28,66/29,02/28,89	-/-	+	-	-	ND	ND	1	c
2021	2814	Cuisses de poulet à la mexicaine	Marinated chicken meat	S. Regent 328	1,0	+	No Ct/No Ct/38,16	29.65/30.07/30.19	-/-+	No Ct/No Ct/ No Ct	28,73/29,03/28,91	-/-	+	-	-	ND	ND	1	c
2021	4442	Débris sol échaudage	Wastes	/	/	+	No Ct/No Ct/38.56	29.65/29.46/29.50	-/-+	No Ct/No Ct/No Ct	29,0629,08/29,06	-/-	+	-	-	ND	ND	2	a
2021	4482	Grit sur sol	Wastes	S. Blockley Ad923	2,2	+	No Ct/No Ct/38.08	29.85/29.51/29.37	-/-+	38,63	28,10	+	+	-	+	ND	PA	2	a
2021	4593	Liquide de saignée	Wastes	S. Heidelberg F33	3,4	+	No Ct/No Ct/No Ct	30.06/29.40/29.42	-/-	No Ct/No Ct/No Ct	28,66/28,89/29,18	-/-	+	-	-	ND	ND	2	a
2021	2604	Chiffonnette (perchoir)	Wipe (perch)	S. Enteritidis Ad2970	1,4	+	No Ct/No Ct/No Ct	30.02/29,37/29,99	-/-	No Ct/No Ct/No Ct	28,57/28,31/28,35	-/-	+	-	-	ND	ND	3	b

Table 7 - Positive deviations

Date of analysis	N° Sample	Product (French name)	Product	Artificial contaminations		Reference method: ISO 6579-1*	Alternative method: IDEXX Salmonella Species DNA Test Kit											Category	Type	
				Strain	Inoculation level (CFU/sample)		PCR						Confirmatory tests (ISO 6579-1)	Final result		Agreement				
							Bio-Rad CFX96			BMS Mic qPCR				Bio-Rad CFX96	BMS Mic qPCR	Bio-Rad CFX96	BMS Mic qPCR			
							Cq (FAM)	Cq (HEX)	Result	Cq (FAM)	Cq (HEX)	Result								
2021	4601	Emincés de poulet marinés	Sliced marinated chicken meat	S. Gallinarum 2	2,6	-	36.95	30.12	+	No Ct/No Ct/37,68	28,61/28,26/28,31	-/-+	+	(after MSRV)	+	-	PD	NA	1	c
2021	2865	Chiffonnette éviscération	Wipe	S. Senftenberg 6	2,0	-	39.14	30.31	+	No Ct/No Ct/No Ct	28,49/28,20/28,43	-/-	+	(5x MKTTn)	+	-	PD	NA	2	c
2021	2078	Fécès	Faeces	S. Virchow 187	1,6	-	38.74	29.93	+	37,15	28,56	+	-	(+ after a subculture in RVS)	+	+	PD	PD	3	a

* Analyses performed according to the COFRAC accreditation

The analyses of discordant results according to the EN ISO 16140-2:2016 is the following (See Table 8):

Table 8 - Analyses of discordant results

Bio-Rad CFX96											
Category	Type	PA	PD	ND	PPND	N+	PAIRED				
							(ND+PPND) -PD	AL	(ND+PPND) +PD	AL	
1	a	Chilled meat	10	0	0	0	10	0		0	
	b	Frozen meat	9	0	0	0	9	0		0	
	c	Seasoned meat	9	1	2	0	12	1		3	
	Total		28	1	2	0	31	1	3	3	6
2	a	Dusts and residues	6	0	3	0	9	3		3	
	b	Cleaning and process waters	11	0	0	0	11	0		0	
	c	Surface samples	11	1	0	0	12	-1		1	
	Total		28	1	3	0	32	2	3	4	6
3	a	Animal faeces	14	1	0	0	15	-1		1	
	b	Environmental samples and non-faeces	14	0	1	0	15	1		1	
	Total		28	1	1	0	30	0	3	2	6
All categories			84	3	6	0	93	3	5	9	10

BMS Mic qPCR											
Category	Type	PA	PD	ND	PPND	N+	PAIRED				
							(ND+PPND) -PD	AL	(ND+PPND) +PD	AL	
1	a	Chilled meat	10	0	0	0	10	0		0	
	b	Frozen meat	9	0	0	0	9	0		0	
	c	Seasoned meat	9	0	2	0	11	2		2	
	Total		28	0	2	0	30	2	3	2	6
2	a	Dusts and residues	7	0	2	0	9	2		2	
	b	Cleaning and process waters	11	0	0	0	11	0		0	
	c	Surface samples	11	0	0	0	11	0		0	
	Total		29	0	2	0	31	2	3	2	6
3	a	Animal faeces	14	1	0	0	15	-1		1	
	b	Environmental samples and non-faeces	14	0	1	0	15	1		1	
	Total		28	1	1	0	30	0	3	2	6
All categories			85	1	5	0	91	4	5	6	10

* PPNA not included

** PPND not included

The observed values for (ND + PPND + PD) and (ND + PPND - PD) meet the acceptability limit for each individual category and for all the combined categories (calculated values ≤ AL) for both thermocyclers tested.

3.1.7 Confirmation

All the samples were confirmed using the complete protocol of the ISO 6579-1 method.

The three samples giving positive presumptive not confirmed samples (using the CFX 96) are listed in Table 9.

For these samples, the confirmation step was repeated five times without success. Note that for all of them, late Ct values were observed with sometimes negative results when PCR replicates were tested.

Table 9 - Confirmation results

Sample N°	Product (French name)	Product	Bio-Rad CFX96			BMS Mic qPCR			Agreement		Category	Type
			Cq (FAM)	Cq (HEX)	Result	Cq (FAM)	Cq (HEX)	Result	Bio-Rad CFX96	BMS Mic qPCR		
2075	Fécès	Faeces	38.02/ 40,53/ No Ct	29.87/ 30,12/ 30,22	+/-/-	No Ct	28,63	-	PPNA	NA	3	a
2466	Fécès	Faeces	39.11/ No Ct/ No Ct	30.04/ 30,28/ 29,78	+/-/-	No Ct	28,33	-	PPNA	NA	3	a
4837	Eau abreuvoir	Drinking water	32.51/ 32.05/ 32.24	29.61/ 29.44/ 29.51	+/+/+	32,58	28,44	+	PPNA	NA	3	b

3.1.8 PCR inhibition

239 PCR tests were carried out with the two cyclers and no inhibition was observed during the study.

3.2 Relative level of detection

The relative level of detection is the level of detection at $P = 0.50$ (LOD_{50}) of the alternative (proprietary) method divided by the level of detection at $P = 0.50$ (LOD_{50}) of the reference method.

The RLOD is defined as the ratio of the alternative and reference methods:

$$RLOD = \frac{LOD_{Alt.}}{LOD_{Ref.}}$$

The relative detection level is the smallest number of culturable micro-organisms that can be detected in the sample in 50% of occasions by the alternative and reference methods.

3.2.1 Experimental design

Three (matrix/strain) pairs were analyzed by the reference method and by the alternative method (See Table 10):

The following protocol was applied:

- A negative control: 5 samples,
- A low contamination level providing fractional recovery data, with 20 replicates,
- A high contamination level, with 5 replicates.

A total plate count determination on each matrix was performed to estimate the total microbial load on the day of analysis.

Table 10 - Defined (matrix/strain) pairs for the RLOD determination

Category		Matrix	Strain	Origin	Inoculation and storage condition
1	Raw poultry meats	Chicken breast	S. Derby Ad1337	Chicken leg	Seeding 48 h at 5°C ± 3°C
2	Poultry environmental production	Process water	S. Senftenberg 1	Poultry environmental sample	Seeding 48 h at 5°C ± 3°C
3	Poultry primary production samples (PPS)	Bootsoks (poultry environment)	S. Enteritidis Ad2970	Poultry environmental sample (bootsoks)	Seeding 24 h at ambient temperature

3.2.2 Calculation and interpretation of the RLOD

The raw data are given in **Appendix 5**.

The RLOD calculations were performed using the Excel spreadsheet available at <http://standards.iso.org/iso/16140> - RLOD (clause 5-1-4-2 Calculation and interpretation of RLOD) version 15.08.2015. The RLOD are in Table 11.

Table 11 – Presentation of RLOD before and after confirmation of the alternative method results

Bio-Rad CFX96									
Category	Matrix/ strain pair	AL	RLOD	RLODL	RLODU	b=ln (RLOD)	sd(b)	z-Test statistic	p-value
1	Chicken breast / S. Derby Ad1337	1,5	1,000	0,385	2,599	0,000	0,478	0,000	1,000
2	Process water / S. Senftenberg 1		1,000	0,434	2,304	0,000	0,417	0,000	1,000
3	Boot socks (PPS) / S. Enteritidis Ad2970		1,000	0,420	2,383	0,000	0,434	0,000	1,000
Combined		/	1,000	0,603	1,659	0,000	0,253	0,000	1,000

BMS Mic qPCR									
Category	Matrix/ strain pair	AL	RLOD	RLODL	RLODU	b=ln (RLOD)	sd(b)	z-Test statistic	p-value
1	Chicken breast / S. Derby Ad1337	1,5	1,000	0,385	2,599	0,000	0,478	0,000	1,000
2	Process water / S. Senftenberg 1		1,357	0,518	3,554	0,305	0,481	0,634	0,526
3	Boot socks (PPS) / S. Enteritidis Ad2970		1,000	0,420	2,383	0,000	0,434	0,000	1,000
Combined		/	1,112	0,627	1,972	0,106	0,287	0,370	0,711

The LOD_{50%} calculations according to Wilrich & Wilrich POD-LOD calculation program - version 10, 2021-03-02 test are given in Table 12.

Table 12 - LOD₅₀ results

Bio-Rad CFX96					
Category	Food item	Strain	Level of detection at 50% (CFU / sample size) according to Wilrich & Wilrich ¹		
			Reference method	Alternative method	
1	Raw poultry meats	Chicken breast	S. Derby Ad1337	0,6 [0,4-1,2]	0,6 [0,4-1,2]
2	Poultry environmental production	Process water	S. Senftenberg 1	0,9 [0,5-1,6]	0,9 [0,5-1,6]
3	Poultry primary production samples (PPS)	Boot socks	S. Enteritidis Ad2970	0,7 [0,4-1,3]	0,7 [0,4-1,3]
Combined				0,8 [0,5-1,1]	0,8 [0,5-1,1]

BMS Mic qPCR					
Category	Food item	Strain	Level of detection at 50% (CFU / sample size) according to Wilrich & Wilrich		
			Reference method	Alternative method	
1	Raw poultry meats	Chicken breast	S. Derby Ad1337	0,6 [0,4-1,2]	0,6 [0,4-1,2]
2	Poultry environmental production	Process water	S. Senftenberg 1	0,9 [0,5-1,6]	1,2 [0,7-2,1]
3	Poultry primary production samples (PPS)	Boot socks	S. Enteritidis Ad2970	0,7 [0,4-1,3]	0,7 [0,4-1,3]
Combined				0,8 [0,5-1,1]	0,8 [0,6-1,2]

3.2.3 Conclusion

The RLOD values (using the confirmed alternative method results) meet the acceptability limit of 1.5 for paired studies, for all matrix/strain pairs tested, whatever the PCR system used.

The LOD₅₀ varies:

- from 0.6 to 0.9 CFU/test portion for the reference method,
- from 0.6 to 0.9 CFU/test portion for the alternative method using the Bio-Rad CFX96,
- from 0.6 to 1.2 CFU/test portion using and the BMS Mic qPCR.

¹ Wilrich, C., and P.-Th. Wilrich: Estimation of the POD function and the LOD of a qualitative microbiological measurement method. AOAC International **92** (2009) 1763 - 1772.

3.3 Inclusivity / exclusivity

The inclusivity is the ability of the alternative method to detect the target analyte from a wide range of strains. The exclusivity is the lack of interference from a relevant range of non-target strains of the alternative method.

3.3.1 Test protocols

> Inclusivity

Salmonella strain cultures were performed in BHI medium at 37°C. Dilutions were done in order to inoculate 10 - 100 cells/225 ml of BPW broth. The broth was incubated for 16 h at 34-38°C before performing the alternative method protocol (PCR and confirmation).

> Exclusivity

Negative strains cultures were performed in BHI at 37°C. Dilutions were realized in order to inoculate 10⁵ cells/ml BPW. The BPW was incubated for 24h at 37°C. The alternative method was then performed (PCR).

3.3.2 Results

Raw data are given in **Appendix 6**.

> Inclusivity

All the 100 target strains gave positive results with the three cyclers.

> Exclusivity

No cross reaction was observed with the 30 non-target strains tested.

3.4 Practicability

The alternative method practicability was evaluated according to the AFNOR criteria relative to method comparison study.

Storage conditions, shelf-life and modalities of utilisation after first use	The different storage conditions are indicated on each reagent: DNA Master Mix –25 to –15°C at receipt DNA Mix –25 to 8°C at receipt, –25 to –15°C after reconstitution Pos control –25 to 8°C at receipt, –25 to –15°C after reconstitution PCR grade water –25 to 8°C. Shelf lives are after first use/reconstitution as the expiry date on the vial			
Time to result	Steps	Reference method	Alternative method	
	Negative samples	All samples	Food and production environmental samples	PPS
	Sampling / pre-enrichment	Day 0	Day 0	Day 0
	Subculture (RVS or MKTTn or MSRV)	Day 1	/	Day 1
	PCR test	/	Day 1	Day 2
	Streaking onto selective plates	Day 2	/	/
	Reading selective plates	Day 3	/	/
	Steps	Reference method	Alternative method	
	Presumptive positive or positive results			
	Subculture (RVS or MKTTn or MSRV)	Day 1	Day 1	Day 1
	Streaking onto selective plates	Day 2	Day 2	Day 2
	Reading selective plates	Day 3	Day 3	Day 3
	Confirmatory test	Day 3 to Day 5	Day 3 to Day 5	Day 3 to Day 5
Common step with the reference method	Primary enrichment for raw poultry meats and production environmental samples Primary and selective enrichment steps for primary production samples			

The negative results are available in one day for raw meats and production environmental samples, the negative results are available in two days for primary production samples and the positive results in 5 days.

4 INTER-LABORATORY STUDY

The inter-laboratory study is a study performed by multiple laboratories testing identical samples at the same time, the results of which are used to estimate alternative-method performance parameters.

4.1 Study organisation

> Collaborators number

Samples were sent to 13 laboratories.

> Matrix and strain used

Chilled turkey fillet meat was inoculated with *Salmonella* Enteritidis Ad2721 isolated from chicken meat.

> Samples

Samples were prepared and inoculated on Monday 24 October 2022 as described below:

- 24 blind coded samples (25 g) for *Salmonella* spp. detection by the RealPCR* *Salmonella* spp. DNA Test kit method and by the ISO 6579-1 (2017) reference method,
- 1 sample for aerobic mesophilic flora enumeration by ISO 4833-1 method,
- 1 water flask labelled "Temperature Control" with a temperature probe.

> Inoculation

The targeted inoculation levels were the following:

- Level: 0 CFU/25 g,
- Level 1: 1 CFU/25 g, inoculation level providing fractional positive recovery data;
- Level 2: 8 CFU/25 g.

> Labelling and shipping

Blind coded samples were placed in isothermal boxes, which contained cooling blocks, and express-shipped to the different laboratories.

A temperature control flask containing a sensor was added to the package to register the temperature profiles during the transport, the package delivery and storage until analyses.

Samples were shipped in 24 h to 72 h to the involved laboratories. The temperature conditions had to stay lower or equal to 8°C during transport, and between 0°C – 8°C in the labs.

➤ Analyses

Collaborative study laboratories and the expert laboratory carried out the analyses on Day 1 (9 labs) or Day 2 (2 labs) or Day 6 (1 lab) with the alternative and reference methods. **The analyses by the reference method and the alternative method were performed on the same day.**

4.2 Experimental parameters controls

4.2.1 Strain stability and background microflora stability

Strain stability was checked by inoculating the matrix at 1000 CFU/g and 1 CFU/25 g. Enumerations were performed for the high contamination level and detection analyses were performed for the low contamination level after 24 h and 48 h storage at $3 \pm 2^\circ\text{C}$. *Triplicate* samples were analysed. The aerobic mesophilic flora was also enumerated; the results are given in Table 13.

Table 13 - Sample stability

Day	Reference method (detection)			CFU/g (enumeration)			Aerobic mesophilic flora (CFU/g)
	Sample 1	Sample 2	Sample 3	Sample 1	Sample 2	Sample 3	
Day 0	+	-	-	1500	600	1200	300
Day 1	-	+	+	1400	1500	1600	300
Day 2	-	-	+	1900	500	900	340
Day 3	-	-	+	1800	2000	1500	360

No evolution was observed during storage at $3^\circ\text{C} \pm 2^\circ\text{C}$.

4.2.2 Contamination levels

The contamination levels and the sample codification were the following (see Table 14).

Table 14 - Contamination levels

Level	Samples	Theoretical target level (CFU/test portion)	True level (CFU/test portion)	Low limit (CFU/test portion)	High limit (CFU/test portion)
L0	1-5-8-9-15-18-21-23	/	/	/	/
L1	3-4-7-10-13-14-16-20	1	0,8	0,6	1,1
L2	2-6-11-12-17-19-22-24	8	7,3	5,7	9,3

4.2.3 Logistic conditions

Temperature conditions are given in Table 15.

Table 15 - Sample temperatures at receipt

Collaborators	Temperature measured		Receipt date and time	Analysis date
	by the probe (°C)	at receipt (°C)		
A	1,5	4,5	D1 25/10/2022 11h45	D1 25/10/2022
B	1,5	4,4	D1 25/10/2022 11h30	D1 25/10/2022
C	2,0	2,0	D1 25/10/2022 12h18	D1 25/10/2022
D	2,0	Not provided	D2 26/10/2022 9h00	D2 26/10/2022
E	Samples not delivered (package lost)			
F	Probe out of order	2,0	D3 27/10/2022 11h40	D3 27/10/2022
G	1,5	3,5	D1 25/10/2022 10h30	D1 25/10/2022
H	Probe out of order	2,3	D1 25/10/2022 10h00	D1 25/10/2022
I	2,0	6,0	D1 25/10/2022 15h00	D2 26/10/2022
J	1,0	4,8	D3 27/10/2022 14h53	D6 30/10/2022
K	1,5	3,0	D1 25/10/2022 13h00	D1 25/10/2022
L	1,0	5,2	D1 25/10/2022 9h00	D1 25/10/2022
M	1,5	3,6	D1 25/10/2022 11h52	D1 25/10/2022

No problem was encountered during the transport or receipt of samples for 9 collaborators with a delivery at Day 1. Collaborators F and J received their package at Day 3 with a correct temperature at receipt. (2,0°C and 4,8°C). Unfortunately, Lab J started the analyses only on Sunday (Day 6). Collaborator E did not receive its samples; the package was lost. All the samples were delivered in appropriate conditions. All temperatures maintained during shipment (when available) and receipt were correct.

4.3 Results analysis

The raw data are given in **Appendix 7**.

4.3.1 Expert laboratory results

The results obtained by the expert laboratory are given in Table 16.

Table 16 – Results obtained by the expert Lab.

Level	Reference method	Alternative method
L0	0/8	0/8
L1	4/8	4/8
L2	8/8	8/8

4.3.2 Results observed by the collaborative laboratories

> ***Aerobic mesophilic flora enumeration***

Depending on the Lab results, the enumeration levels varied from 140 to 62 000 000 CFU/g (at day 6 for Lab J).

> ***Salmonella spp. detection***

12 collaborators carried out the analyses. The cyclers used for the ILS are listed in Table 17.

8 collaborators used the CFX 96 from Bio-Rad, 4 collaborators used the BMS Mic qPCR from IDEXX and 1 (D), the 7500 Fast from Applied Biosystems. The data from this lab were not taken into account as this thermocycler was not included in the scope of the validation.

Table 17 - Cyclers used for the ILS

Collaborator	Thermocycler used
A	CFX96
B	BMS Mic qPCR
C	CFX96
D	7500 Fast
F	CFX96
G	CFX96
H	CFX96
I	CFX96
J	BMS Mic qPCR
K	CFX96
L	BMS Mic qPCR
M	BMS Mic qPCR
N (ADRIA)	CFX96

The results obtained are provided in Table 18 (reference method) and Table 19 (alternative method).

Table 18 - Positive results by the reference method (ALL the collaborators)

Collaborator	Contamination level		
	L0	L1	L2
A	0	6	8
B	0	5	8
C	0	5	8
D	0	3	7
F	0	5	8
G	0	4	8
H	0	4	8
I	0	4	8
J	0	4	8
K	0	5	8
L	0	2	8
M	0	7	8
TOTAL	P₀ = 0	P₁ = 54	P₂ = 95

**Table 19 - Positive results (before and after confirmation)
by the alternative method (ALL the collaborators)**

Collaborators	Contamination level								
	L0			L1			L2		
	Before confirmation	Confirmation	After confirmation	Before confirmation	Confirmation	After confirmation	Before confirmation	Confirmation	After confirmation
A	0	0	0	6	6	6	8	8	8
B	0	0	0	5	5	5	8	8	8
C	0	0	0	5	5	5	8	8	8
D	2	0	0	8	3	3	8	7	7
F	0	0	0	5	5	5	8	8	8
G	0	0	0	3	4	3	8	8	8
H	0	0	0	4	4	4	8	8	8
I	0	0	0	4	4	4	8	8	8
J	0	0	0	3	4	3	8	8	8
K	0	0	0	5	5	5	8	8	8
L	1	0	0	2	2	2	8	8	8
TOTAL	P₀ = 3	C₀ = 0	CP₀ = 0	P₁ = 58	C₁ = 54	CP₁ = 53	P₂ = 96	C₂ = 95	CP₂ = 95

4.3.3 Results of the collaborators retained for interpretation

Two laboratories performed the analyses after the limit fixed at Day2: Lab F at Day 3 and Lab J at Day 6. It was decided to keep the data from Lab D as the temperature at receipt was correct and the stability of the strain was demonstrated until Day 3. For lab J even the results seemed to be correct with fractional positive results at for the low inoculation level for both the reference and the alternative methods, the stability of the strain was not checked for such a long period of storage and the mesophilic aerobic flora indicates a high level of background microflora (6,2. 0⁷ CFU/g).

According to the AFNOR technical rules, it is possible to include the results from a collaborator with maximum one cross contamination at Level 0. For this study, this rule was applied for Lab L which obtained a positive PCR for sample L1. The DNA extract was tested twice again, and negative PCR tests were observed.

Collaborator D also obtained positive PCR results but for 2 unspiked samples (D5 and D23) and 5 non-confirmed positive PCR results for inoculated samples (PPNA). Additionally, the lab did not respect the protocol and used the 7500 Fast from Applied Biosystems for PCR testing.

The interpretation was carried out with 10 laboratories (excluding lab D and J).

The results obtained with the 11 labs kept for interpretation are presented in Table 20 (reference method) and Table 21 (alternative method).

Table 20 - Positive results by the reference method (Without Labs D and J)

Collaborators	Contamination level		
	L0	L1	L2
A	0	6	8
B	0	5	8
C	0	5	8
F	0	5	8
G	0	4	8
H	0	4	8
I	0	4	8
K	0	5	8
L	0	2	8
M	0	7	8
TOTAL	P₀ = 0	P₁ = 47	P₂ = 80

Table 21 - Positive results (before and after confirmation) by the alternative method (Without Labs D and J)

Collaborators	Contamination level								
	L0			L1			L2		
	Before confirmation	Confirmation	After confirmation	Before confirmation	Confirmation	After confirmation	Before confirmation	Confirmation	After confirmation
A	0	0	0	6	6	6	8	8	8
B	0	0	0	5	5	5	8	8	8
C	0	0	0	5	5	5	8	8	8
F	0	0	0	5	5	5	8	8	8
G	0	0	0	3	4	3	8	8	8
H	0	0	0	4	4	4	8	8	8
I	0	0	0	4	4	4	8	8	8
K	0	0	0	5	5	5	8	8	8
L	1	0	0	2	2	2	8	8	8
M	0	0	0	7	7	7	8	8	8
TOTAL	P₀ = 1	C₀ = 0	CP₀ = 0	P₁ = 46	C₁ = 47	CP₁ = 46	P₂ = 80	C₂ = 80	CP₂ = 80

4.4 Calculation and interpretation

4.4.1 Calculation of the specificity percentage (SP)

The Specificity percentage (SP) of the reference method and of the alternative method, using the data after confirmation, based on the results of level L0 are presented in Table 22.

Table 22 - Specificity percentage

Specificity for the reference method	$SP_{ref} = \left(1 - \left(\frac{P_0}{N_-} \right) \right) \times 100 \% =$	100 %
Specificity for the alternative method	$SP_{alt} = \left(1 - \left(\frac{CP_0}{N_-} \right) \right) \times 100 \% =$	100 %

N: number of all L0 tests

P_0 = total number of false-positive results obtained with the blank samples before confirmation

CP_0 = total number of false-positive results obtained with the blank samples

4.4.2 Calculation of the sensitivity of the alternative method (SE_{alt}), the sensitivity for the reference method (SE_{ref}), the relative trueness (RT) and the false positive ratio for the alternative method (FPR)

Fractional positive results were obtained for the low inoculation level (58% positive for the ISO 6579-1 method and 56,8 % for the alternative method). The low inoculation levels were retained for calculation.

A summary of the results of the collaborators retained for interpretation, obtained with the reference and the alternative methods for Level 1 and Level 2 is provided in Table 23.

Table 23 - Summary of the obtained results with the reference method and the alternative method for Level 1 and Level 2

Level	Response	Reference method positive (R+)	Reference method negative (R-)
1	Alternative method positive (A+)	Positive agreement (A+/R+) PA = 50	Positive deviation (R-/A+) PD = 0
	Alternative method negative (A-)	Negative deviation (A-/R+) ND = 1 (PPND= 0)	Negative agreement (A-/R-) NA = 37 (PPNA= 0)
2	Alternative method positive (A+)	Positive agreement (A+/R+) PA = 80	Positive deviation (R-/A+) PD = 0
	Alternative method negative (A-)	Negative deviation (A-/R+) ND = 0 (PPND= 0)	Negative agreement (A-/R-) NA = 0 (PPNA= 0)

Based on the data summarized in Table 23, the calculated values of the sensitivity of the alternative and reference methods, as well as the relative trueness and false positive ratio for the alternative method (taking account the confirmations) are presented in Table 24.

Table 24 - Sensitivity, relative trueness and false positive ratio percentages

		Level 1
Sensitivity for the alternative method	$SE_{alt} = \frac{(PA+PD)}{(PA+PD+ND)} \times 100\% =$	98,0%
Sensitivity for the reference method	$SE_{ref} = \frac{(PA+ND)}{(PA+PD+ND)} \times 100\% =$	100,0%
Relative trueness	$RT = \frac{(PA+NA)}{N} \times 100\% =$	98,9%
False positive ratio for the alternative method	$FPR = \frac{FP}{NA} \times 100\% =$	0%

4.4.3 Interpretation of data

Only one negative deviation was observed for this study, this concern sample G7 for which a Ct value of 40,72 was obtained for the target. As the limit of positivity is fixed at 40,0 in the kit insert, the PCR result was considered negative. The PCR test was repeated twice again, and one negative and one positive result were observed Cq=40,65). The contamination level was probably just at the limit of detection of the method.

For a **paired study design**, the difference between (ND – PD) and the addition (ND + PD) are calculated for the level(s) where fractional recovery is obtained (so L_1 and possibly L_2). The observed value found for (ND – PD) and (ND + PD) shall not be higher than the AL.

For 11 Labs, the limits are the following:

	Calculated values	AL	Conclusion
ND - PD	1	3	ND-PD ≤ AL
ND + PD	1	4	ND-PD ≤ AL

The EN ISO 16140-2:2016 requirements are fulfilled as (ND - PD) and (ND + PD) meet the AL.

4.4.4 Evaluation of the LOD_{50%}, LOD_{95%} and RLOD between laboratories

The RLOD was calculated using the EN ISO 16140-2:2016 Excel spreadsheet available at https://standards.iso.org/iso/16140/-5/ed-1/en/RLOD_inter-lab-study_16140-2_AnnexF_ver1_28-06-2017.xls. The results are used only for information (see Table 25).

Table 25 - LOD_{50%}, LOD_{95%} and RLOD

Method	LOD 50%	LOD 95%	RLOD
Reference	0,76 [0,56;1,02]	3,28 [2,43;4,43]	1,03
Alternative	0,78 [0,58;1,06]	3,39 [2,51;4,57]	[0,73;1,47]

5 CONCLUSION

The **method comparison study conclusions** are:

- The method comparison study scheme corresponds to a PAIRED STUDY design as the alternative and reference methods have a common enrichment procedure.
- In the sensitivity study, three categories were tested: one food category, the production environmental samples and primary production samples. The protocol of the alternative method shows one or three positive deviations (PD) and five or six negative deviations (ND) for the overall categories depending on the thermocycler tested. The (ND + PPND - PD) and (ND + PPND + PD) meet the acceptability limits (AL) whatever the categories, and as well for the 3 tested categories and the 2 PCR platforms (Bio-Rad CFX96 and BMS Mic qPCR).
- The Relative Levels of Detection (RLOD) meet the AL fixed at 1.5 for the paired data study whatever the matrix/strain pairs tested for the three thermocyclers.
- The inclusivity and exclusivity testing gave the expected results for the 100 target strains and the 30 non-target strains.
- The alternative method allows a one-day screening of the negative samples for raw meat and production environmental samples, and a two-days screening for the primary production samples.

- The alternative method fulfils all the EN ISO 16140-2:2016 and AFNOR technical rules (PR revision 7).

The **inter-laboratory study conclusions** are:

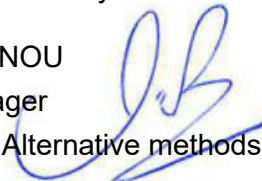
- These data and interpretations comply with the EN ISO 16140-2:2016 requirements. **The RealPCR* *Salmonella* spp. DNA Test is considered equivalent to the ISO standard method.**

Quimper, 17 January 2023

Maryse RANNOU

Project Manager

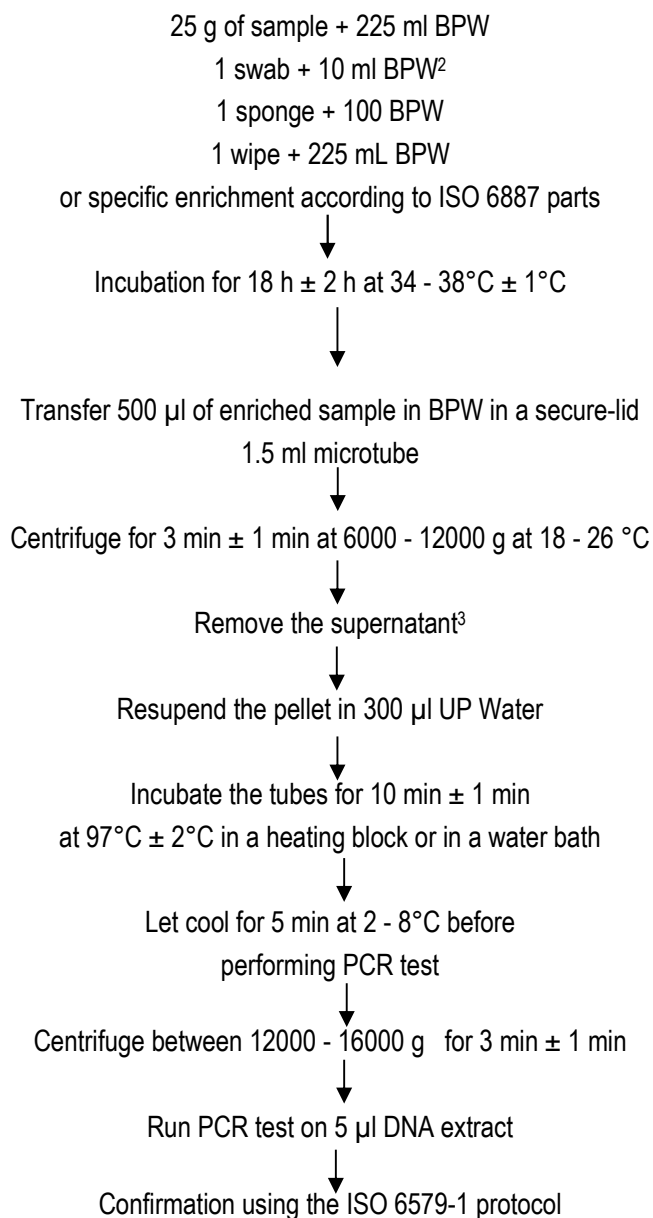
Validation of Alternative methods



I hereby attest to the validation of the verification of the conformity of the report (opinion and interpretation).

**Appendix 1 – Flow diagram of the alternative method:
RealPCR* *Salmonella* spp. DNA Test**

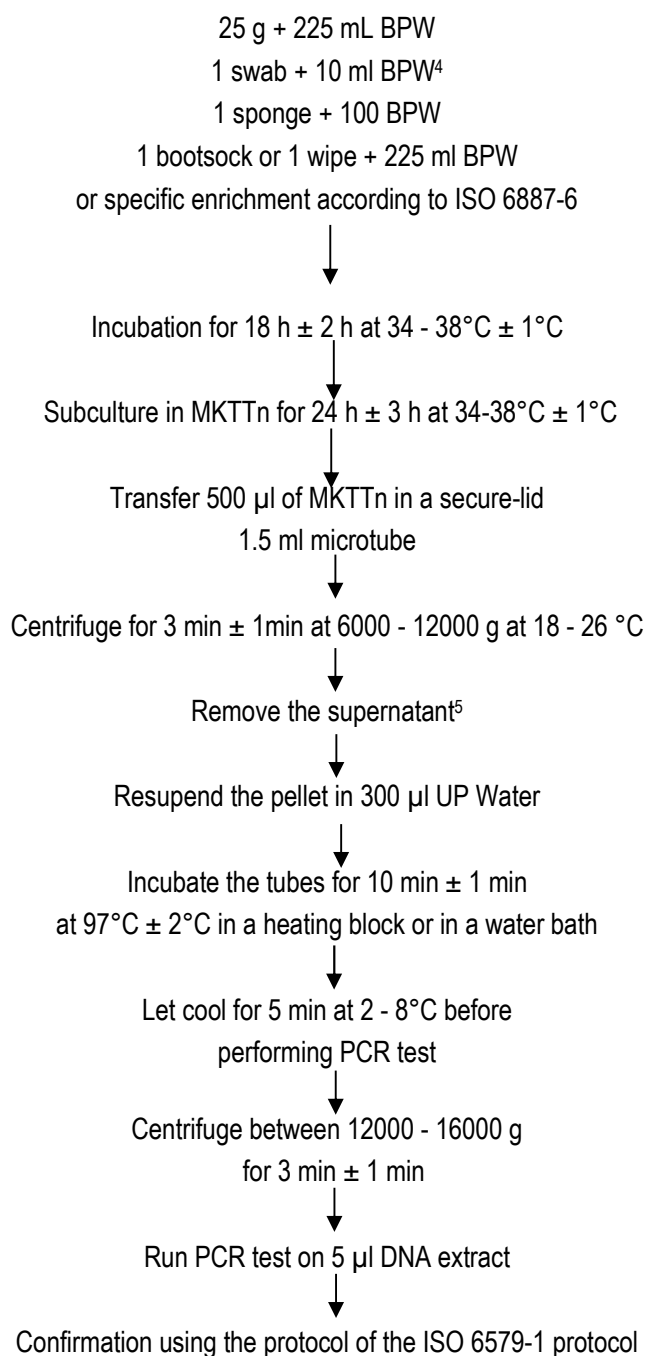
Food and production environmental samples
--



- ² For sampling after cleaning process premoisten
- 1 swab + 1 ml broth universal neutralizing (+ 9 ml BPW)
 - 1 sponge + 10 ml broth universal neutralizing (+ 90 ml BPW)
 - 1 wipe + BPW + 10 % neutralizing agent (+ 225 ml BPW)

- ³ For samples with a fat layer on top of the supernatant, remove the fat and wash the pellet with 1 ml of ultrapure water and repeat steps 2 and 3.
For samples which contain a lot of debris or with a dark coloured supernatant, wash the pellet with 1 ml of ultrapure water and repeat steps 2 and 3.

Primary production samples



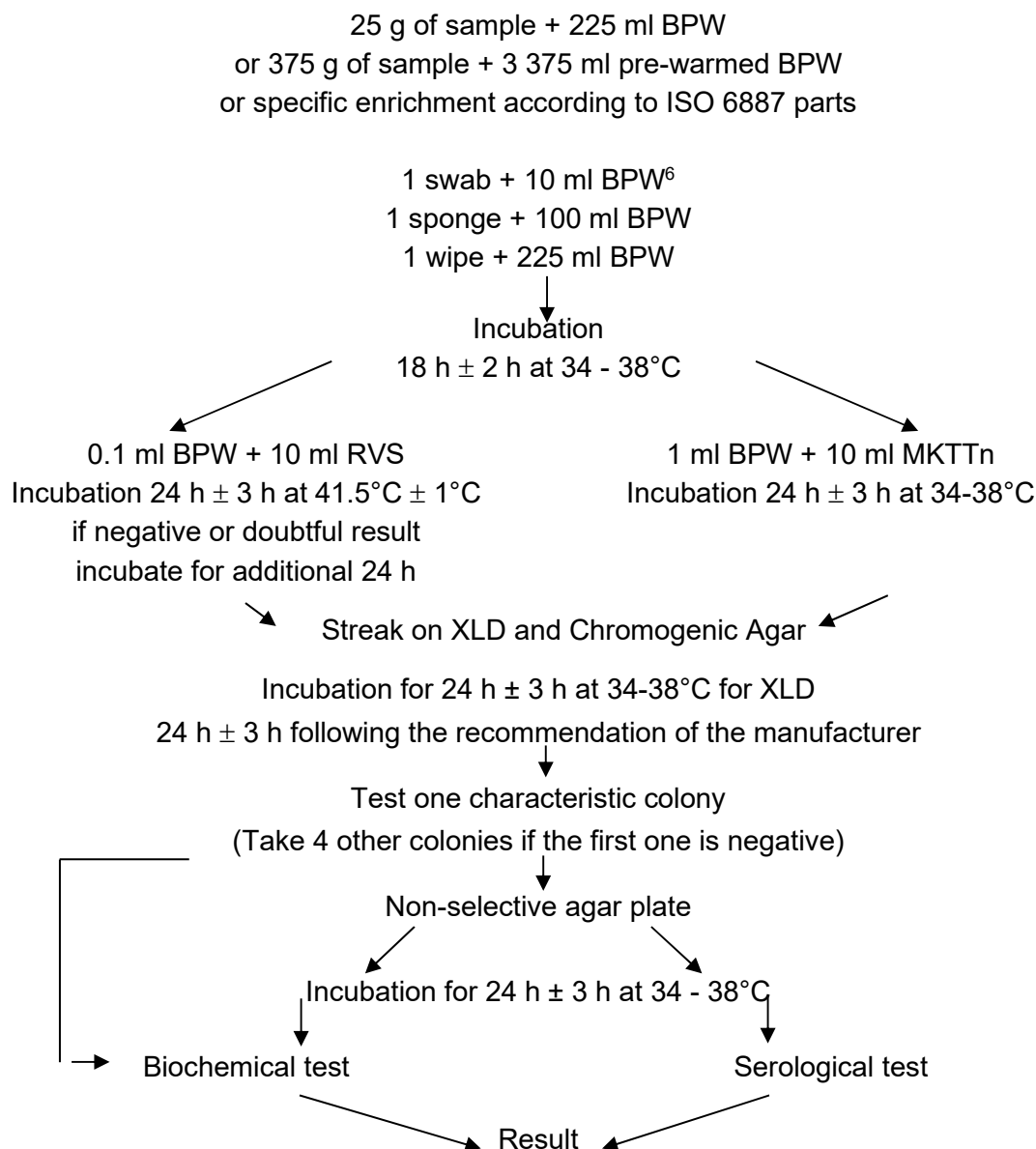
- ⁴ For sampling after cleaning process premoisten
- 1 swab + 1 ml broth universal neutralizing (+ 9 ml BPW)
 - 1 sponge + 10 ml broth universal neutralizing (+ 90 ml BPW)
 - 1 wipe + BPW + 10 % neutralizing agent (+ 225 ml BPW)

- ⁵ For samples with a fat layer on top of the supernatant, remove the fat and wash the pellet with 1 ml of ultrapure water and repeat steps 2 and 3.
For samples which contain a lot of debris or with a dark coloured supernatant, wash the pellet with 1 ml of ultrapure water and repeat steps 2 and 3.

Appendix 2 – Flow diagram of the reference method

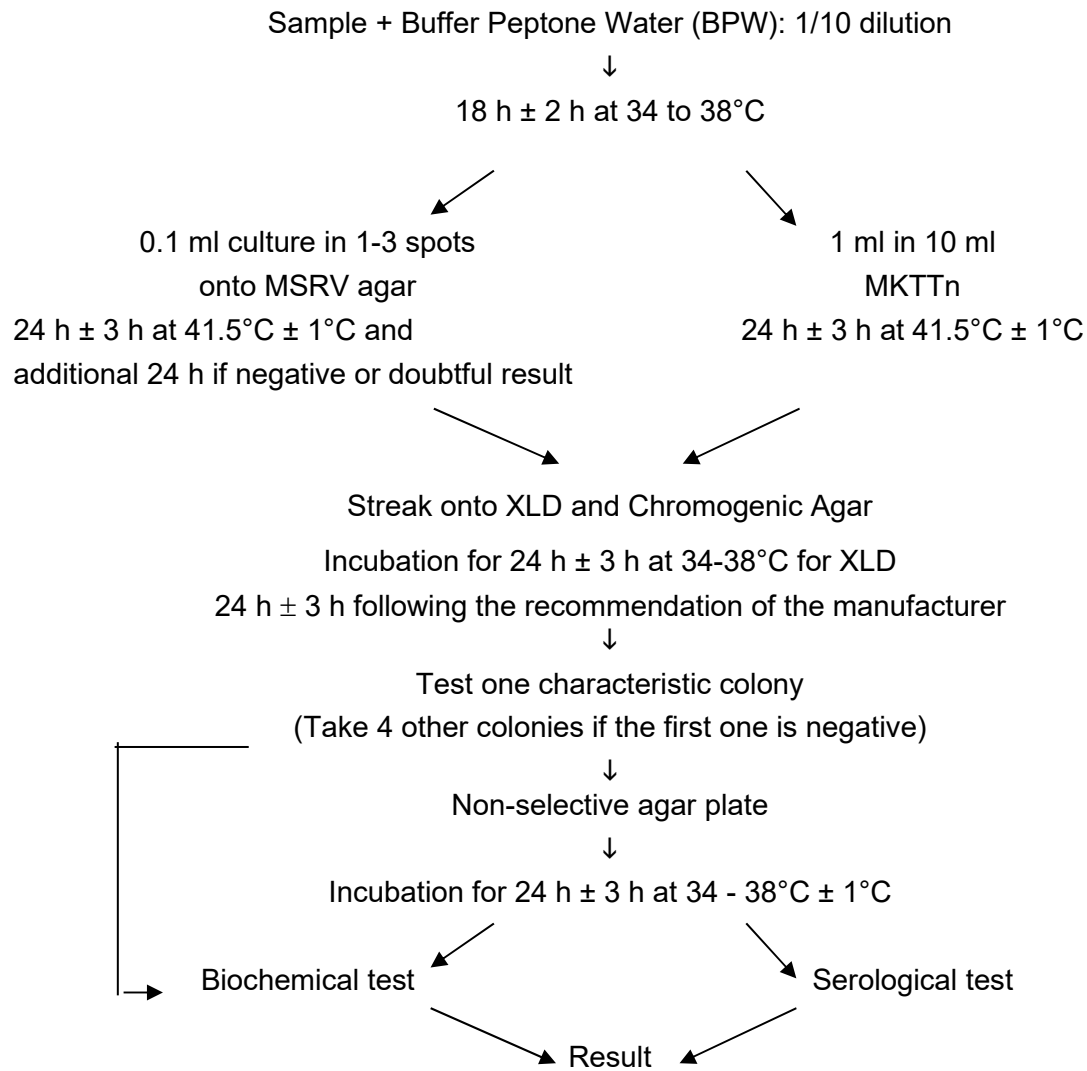
ISO 6579-1 (February 2017): Microbiology of the food chain - Horizontal method for the detection, enumeration and serotyping of *Salmonella* spp. - Part 1: detection of *Salmonella* spp.

ISO 6579-1/A1 (March 2020): Microbiology of the food chain - Horizontal method for the detection, enumeration and serotyping of *Salmonella* spp. - Part 1: detection of *Salmonella* spp. Amendment 1: Broader range of incubation temperatures, amendment to the status of Annex D, and correction of the composition of MSR/V and SC



⁶ For sampling after cleaning process premoisten

- 1 swab + 1 ml broth universal neutralizing (+ 9 ml BPW)
- 1 sponge + 10 ml broth universal neutralizing (+ 90 ml BPW)
- 1 wipe + BPW + 10 % neutralizing agent (+ 225 ml BPW)

Primary production samples: faeces and environmental samples

Appendix 3 – Artificial contamination of samples

Date of analysis	N° Sample	Product (French name)	Product	Artificial contaminations				Global result		Category	Type	
				Strain	Origin	Injury protocol	Inoculation level/sample		Bio-Rad CFX96			BMS Mic qPCR
							Enumeration	Mean				
2021	1551	Blanc de poulet	Chicken breast	S. Derby Ad2985	Poultry	Seeding 48h at 3 ± 2°C	3-2-1-1-4	2,2	+	+	1	a
2021	1552	Filet de pintade	Guinea fowl meat	S. Enteritidis Ad2525	Poultry	Seeding 48h at 3 ± 2°C	3-2-1-1-4	2,2	+	+	1	a
2021	1553	Cuisse de poulet	Chicken thigh	S. Typhimurium Ad913	Poultry	Seeding 48h at 3 ± 2°C	5-2-1-3-4	3,0	+	+	1	a
2021	1554	Escalope de poulet	Chicken breast	S. Newport Ad2223	Poultry	Seeding 48h at 3 ± 2°C	4-1-2-0-3	2,0	+	+	1	a
2021	1555	Escalope de dinde	Turkey breast	S. Newport Ad2223	Poultry	Seeding 48h at 3 ± 2°C	4-1-2-0-3	2,0	+	+	1	a
2021	4592	Carcasse de coquelet	Cockerel carcass	S. Braenderup Ad915	Poultry	Seeding 48h at 3 ± 2°C	6-4-1-1-3	3,0	+	+	1	a
2021	1565	Sot l'y laisse de dinde surgelé	Frozen turkey meat	S. Schwarzengrund Ad2704	Poultry	Seeding 2 weeks at -20°C	4-3-3-2-2	2,8	+	+	1	b
2021	1566	Osso bucco de dinde surgelé	Frozen turkey meat	S. Schwarzengrund Ad2704	Poultry	Seeding 2 weeks at -20°C	4-3-3-2-2	2,8	+	+	1	b
2021	1567	Cuisse de pintade surgelée	Frozen guinea fowl leg	S. Schwarzengrund Ad2704	Poultry	Seeding 2 weeks at -20°C	4-3-3-2-2	2,8	+	+	1	b
2021	1568	Emincé de poulet surgelé	Frozen minced chicken meat	S. Schwarzengrund Ad2704	Poultry	Seeding 2 weeks at -20°C	4-3-3-2-2	2,8	+	+	1	b
2021	1569	Cuisse de poulet surgelée	Frozen chicken leg	S. Schwarzengrund Ad2704	Poultry	Seeding 2 weeks at -20°C	4-3-3-2-2	2,8	-	-	1	b
2021	1570	Suprême de pintade surgelé	Frozen guinea fowl meat	S. Bredeney Ad2042	Poultry	Seeding 2 weeks at -20°C	1-1-1-0-0	0,6	+	+	1	b
2021	1571	Filet de poulet bio surgelé	Frozen chicken fillet	S. Bredeney Ad2042	Poultry	Seeding 2 weeks at -20°C	1-1-1-0-0	0,6	+	+	1	b
2021	1572	Haut de cuisse de poulet surgelée	Frozen chicken thigh top	S. Bredeney Ad2042	Poultry	Seeding 2 weeks at -20°C	1-1-1-0-0	0,6	+	+	1	b
2021	1573	Pilon de poulet surgelé	Frozen chicken meat	S. Bredeney Ad2042	Poultry	Seeding 2 weeks at -20°C	1-1-1-0-0	0,6	+	+	1	b
2021	1574	Sauté de dinde surgelé	Frozen turkey meat	S. Bredeney Ad2042	Poultry	Seeding 2 weeks at -20°C	1-1-1-0-0	0,6	+	+	1	b
2021	1545	Saucisses nature de volaille bio	Poultry sausages	S. Derby Ad2985	Poultry	Seeding 48h at 3 ± 2°C	3-2-1-1-4	2,2	-	-	1	c
2021	1546	Saucisses nature de volaille bio	Poultry sausages	S. Enteritidis Ad2525	Poultry	Seeding 48h at 3 ± 2°C	3-2-1-1-4	2,2	+	+	1	c
2021	1547	Poulet mariné	Marinated chicken	S. Typhimurium Ad913	Poultry	Seeding 48h at 3 ± 2°C	5-2-1-3-4	3,0	+	+	1	c
2021	1548	Poulet mariné	Marinated chicken	S. Newport Ad2223	Poultry	Seeding 48h at 3 ± 2°C	4-1-2-0-3	2,0	+	+	1	c
2021	1549	Emincé de dinde mariné	Minced marinated turkey	S. Derby Ad2985	Poultry	Seeding 48h at 3 ± 2°C	3-2-1-1-4	2,2	-	-	1	c
2021	1550	Brochette de dinde marinée	Marinated turkey meat	S. Enteritidis Ad2525	Poultry	Seeding 48h at 3 ± 2°C	3-2-1-1-4	2,2	-	-	1	c
2021	2811	Merguez de volaille	Poultry merguez	S. Regent 328	Poultry	Seeding 48h at 3 ± 2°C	1-1-2-1-0	1,0	-	-	1	c
2021	2812	Aiguillettes de poulet marinées thym citron	Marinated chicken meat	S. Thompson AER300	Poultry	Seeding 48h at 3 ± 2°C	4-1-2-5-1	2,6	+	+	1	c
2021	2813	Saucisse de volaille	Poultry sausages	S. SaintPaul 631	Poultry	Seeding 48h at 3 ± 2°C	1-1-4-3-1	2,0	-	-	1	c
2021	2814	Cuisses de poulet à la mexicaine	Marinated chicken meat	S. Regent 328	Poultry	Seeding 48h at 3 ± 2°C	1-1-2-1-0	1,0	+	+	1	c
2021	2815	Cuisses de poulet au paprika	Marinated chicken meat	S. SaintPaul 631	Poultry	Seeding 48h at 3 ± 2°C	1-1-4-3-1	2,0	-	-	1	c
2021	2816	Ailerons de poulet à la mexicaine	Marinated chicken meat	S. Thompson AER300	Poultry	Seeding 48h at 3 ± 2°C	4-1-2-5-1	2,6	+	+	1	c
2021	2817	Hauts de cuisse de poulet au paprika	Marinated chicken meat	S. Regent 328	Poultry	Seeding 48h at 3 ± 2°C	1-1-2-1-0	1,0	+	+	1	c
2021	2818	Ailerons de poulet marinées barbecue	Marinated chicken meat	S. SaintPaul 631	Poultry	Seeding 48h at 3 ± 2°C	1-1-4-3-1	2,0	+	+	1	c
2021	4601	Emincés de poulet mariné	Marinated chicken meat	S. Gallinarum 2	Poultry environment	Seeding 48h at 3 ± 2°C	4-1-1-1-6	2,6	+	-	1	c
2021	4846	Brochette de poulet mariné	Marinated chicken meat	S. Pomona CIP105630	Poultry	Seeding 48h at 3 ± 2°C	3-2-4-2-4	3,0	+	+	1	c
2021	4847	Cuisse de poulet marinée à la mexicaine	Marinated chicken meat	S. Infantis 937	Poultry	Seeding 48h at 3 ± 2°C	3-9-8-9-5	6,8	+	+	1	c
2021	4848	Cuisse poulet marinée basilic	Marinated chicken meat	S. Virchow 647	Poultry	Seeding 48h at 3 ± 2°C	9-4-5-6-3	5,4	+	+	1	c
2021	1577	Déchets de volaille	Residues	S. Havana Ad930	Poultry environment	Seeding 48h at 3 ± 2°C	3-1-4-2-5	3,0	+	+	2	a
2021	2864	Résidus abattoir	Residues	S. Kottbus 1	Poultry environment	Seeding 48h at 3 ± 2°C	0-2-1-1-0	0,8	-	-	2	a
2021	2867	Déchets éviscération	Residues	S. Amsterdam Ad1767	Poultry environment	Seeding 48h at 3 ± 2°C	3-2-2-4-2	2,6	+	+	2	a
2021	2871	Déchets de poulets	Residues	S. Kottbus 1	Poultry environment	Seeding 48h at 3 ± 2°C	0-2-1-1-0	0,8	+	+	2	a
2021	4478	Liquide saignée	Wastes	S. Kottbus 3	Poultry environment	Seeding 48h at 3 ± 2°C	5-1-2-5-0	2,6	-	-	2	a
2021	4482	Grit sur sol	Wastes	S. Blockley Ad923	Poultry environment	Seeding 48h at 3 ± 2°C	2-2-3-2-2	2,2	+	+	2	a
2021	4593	Liquide de saignée	Wastes	S. Heidelberg F33	Poultry	Seeding 48h at 3 ± 2°C	3-5-2-4-3	3,4	+	+	2	a
2021	4597	Grit sur sol	Wastes	S. Gallinarum 2	Poultry environment	Seeding 48h at 3 ± 2°C	4-1-1-1-6	2,6	-	-	2	a

Date of analysis	N° Sample	Product (French name)	Product	Artificial contaminations					Global result		Category	Type
				Strain	Origin	Injury protocol	Inoculation level/sample		Bio-Rad CFX96	BMS Mic qPCR		
							Enumeration	Mean				
2021	4843	Déchets sol (dinde)	Wastes	S. Pomona CIP105630	Poultry	Seeding 48h at 3 ± 2°C	3-2-4-2-4	3,0	+	+	2	a
2021	4844	Déchets sol (pintade)	Wastes	S. Infantis 937	Poultry	Seeding 48h at 3 ± 2°C	3-9-8-9-5	6,8	+	+	2	a
2021	4845	Déchets sol (poulet)	Wastes	S. Virchow 647	Poultry	Seeding 48h at 3 ± 2°C	9-4-5-6-3	5,4	+	+	2	a
2021	1576	Eau rinçage jambon de volaille	Cleaning water	S. Amsterdam Ad1767	Poultry environment	Seeding 48h at 3 ± 2°C	1-3-5-0-2	2,2	-	-	2	b
2021	2866	Eau de lavage gouttière éviscération	Cleaning water	S. Havana Ad930	Poultry environment	Seeding 48h at 3 ± 2°C	3-6-0-4-2	3,0	+	+	2	b
2021	2868	Eau de process	Process water	S. Senftenberg 6	Poultry environment	Seeding 48h at 3 ± 2°C	2-2-3-1-2	2,0	+	+	2	b
2021	2873	Eau de rinçage	Rinsing water	S. Amsterdam Ad1767	Poultry environment	Seeding 48h at 3 ± 2°C	3-2-2-4-2	2,6	-	-	2	b
2021	4476	Eau du bac échaudage	Process water	S. Blockley Ad923	Poultry environment	Seeding 48h at 3 ± 2°C	2-2-3-2-2	2,2	+	+	2	b
2021	4477	Eau du bac échaudage	Process water	S. Senftenberg 1	Poultry environment	Seeding 48h at 3 ± 2°C	1-2-3-3-1	2,0	+	+	2	b
2021	4483	Eau lavage couteaux	Cleaning water	S. Blockley Ad923	Poultry environment	Seeding 48h at 3 ± 2°C	2-2-3-2-2	2,2	-	-	2	b
2021	4484	Eau lavage couteaux	Cleaning water	S. Senftenberg 1	Poultry environment	Seeding 48h at 3 ± 2°C	1-2-3-3-1	2,0	-	-	2	b
2021	4599	Eau du bac échaudage	Process water	S. Typhimurium Ad1335	Poultry environment	Seeding 48h at 3 ± 2°C	6-5-4-6-4	5,0	+	+	2	b
2021	4600	Eau du bac échaudage	Process water	S. Typhimurium Ad1335	Poultry environment	Seeding 48h at 3 ± 2°C	6-5-4-6-4	5,0	+	+	2	b
2021	4838	Eau de process (pintade)	Process water	S. Pomona CIP105630	Poultry	Seeding 48h at 3 ± 2°C	3-2-4-2-4	3,0	+	+	2	b
2021	4839	Eau de rinçage (dinde)	Rinsing water	S. Infantis 937	Poultry	Seeding 48h at 3 ± 2°C	3-9-8-9-5	6,8	+	+	2	b
2021	4840	Eau de rinçage (dinde)	Rinsing water	S. Virchow 647	Poultry	Seeding 48h at 3 ± 2°C	9-4-5-6-3	5,4	+	+	2	b
2021	4841	Eau de rinçage (dinde)	Rinsing water	S. Heidelberg F33	Poultry	Seeding 48h at 3 ± 2°C	6-9-6-5-3	5,8	+	+	2	b
2021	4842	Eau de rinçage (poulet)	Rinsing water	S. Heidelberg F33	Poultry	Seeding 48h at 3 ± 2°C	6-9-6-5-3	5,8	+	+	2	b
2021	1575	Chiffonnette cutter volaille	Wipe	S. Amsterdam Ad1767	Poultry environment	Seeding 48h at 3 ± 2°C	1-3-5-0-2	2,2	+	+	2	c
2021	2865	Chiffonnette éviscération	Wipe	S. Senftenberg 6	Poultry environment	Seeding 48h at 3 ± 2°C	2-2-3-1-2	2,0	+	-	2	c
2021	2869	Chiffonnette rack poulets	Wipe	S. Kottbus 1	Poultry environment	Seeding 48h at 3 ± 2°C	0-2-1-1-0	0,8	-	-	2	c
2021	2870	Chiffonnette table de préparation	Wipe	S. Havana Ad930	Poultry environment	Seeding 48h at 3 ± 2°C	3-6-0-4-2	3,0	-	-	2	c
2021	2872	Chiffonnette zone de stockage	Wipe	S. Amsterdam Ad1767	Poultry environment	Seeding 48h at 3 ± 2°C	3-2-2-4-2	2,6	+	+	2	c
2021	4471	Ecouvillon électronarcose	Swab	S. Amsterdam Ad1766	Poultry environment	Seeding 48h at 3 ± 2°C	1-1-0-0-0	0,4	-	-	2	c
2021	4472	Ecouvillon la parmentière	Swab	S. Blockley Ad923	Poultry environment	Seeding 48h at 3 ± 2°C	2-2-3-2-2	2,2	+	+	2	c
2021	4473	Ecouvillon sous videuse	Swab	S. Senftenberg 1	Poultry environment	Seeding 48h at 3 ± 2°C	1-2-3-3-1	2,0	+	+	2	c
2021	4474	Ecouvillon couteaux	Swab	S. Kottbus 3	Poultry environment	Seeding 48h at 3 ± 2°C	5-1-2-5-0	2,6	+	+	2	c
2021	4475	Ecouvillon balance découpe	Swab	S. Amsterdam Ad1766	Poultry environment	Seeding 48h at 3 ± 2°C	1-1-0-0-0	0,4	-	-	2	c
2021	4479	Pédichiffonnette local éviscération	Wipe	S. Kottbus 3	Poultry environment	Seeding 48h at 3 ± 2°C	5-1-2-5-0	2,6	+	+	2	c
2021	4480	Chiffonnette murs chambre ressuyage	Wipe	S. Kottbus 3	Poultry environment	Seeding 48h at 3 ± 2°C	5-1-2-5-0	2,6	+	+	2	c
2021	4481	Chiffonnette table découpe	Wipe	S. Amsterdam Ad1766	Poultry environment	Seeding 48h at 3 ± 2°C	1-1-0-0-0	0,4	-	-	2	c
2021	4594	Ecouvillon lave main éviscération	Swab	S. Gallinarum 2	Poultry environment	Seeding 48h at 3 ± 2°C	4-1-1-1-6	2,6	-	-	2	c
2021	4595	Chiffonnette mur chambre froide	Wipe	S. Typhimurium Ad1335	Poultry environment	Seeding 48h at 3 ± 2°C	6-5-4-6-4	5,0	-	-	2	c
2021	4596	Ecouvillon lave mains vestiaire	Swab	S. Gallinarum 2	Poultry environment	Seeding 48h at 3 ± 2°C	4-1-1-1-6	2,6	+	+	2	c
2021	4598	Ecouvillon lavage couteaux	Swab	S. Typhimurium Ad1335	Poultry environment	Seeding 48h at 3 ± 2°C	6-5-4-6-4	5,0	+	+	2	c
2021	1482	Fèces	Faeces	S. Livingstone Ad1107	Primary production sample	Seeding 24h at ambient temperature	2-2-2-1-1	1,6	+	+	3	a
2021	1483	Fèces	Faeces	S. Infantis Ad1404	Primary production sample	Seeding 24h at ambient temperature	2-5-4-1-2	2,8	+	+	3	a
2021	1488	Pédichiffonnette	Boot sock	S. Livingstone Ad1107	Primary production sample	Seeding 24h at ambient temperature	2-2-2-1-1	1,6	-	-	3	a
2021	1489	Pédichiffonnette	Boot sock	S. Infantis Ad1404	Primary production sample	Seeding 24h at ambient temperature	2-5-4-1-2	2,8	+	+	3	a
2021	2073	Pédichiffonnette	Boot sock	S. Djugu Ad2969	Primary production sample	Seeding 24h at ambient temperature	0-0-0-1-1	0,4	-	-	3	a
2021	2074	Fécès	Faeces	S. Anatum Ad1108	Primary production sample	Seeding 24h at ambient temperature	0-2-1-2-0	1,0	+	+	3	a
2021	2075	Fécès	Faeces	S. Virchow 187	Primary production sample	Seeding 24h at ambient temperature	1-0-3-3-1	1,6	-	-	3	a
2021	2078	Fécès	Faeces	S. Virchow 187	Primary production sample	Seeding 24h at ambient temperature	1-0-3-3-1	1,6	+	+	3	a
2021	2079	Fécès	Faeces	S. Djugu Ad2969	Primary production sample	Seeding 24h at ambient temperature	0-0-0-1-1	0,4	+	+	3	a

Date of analysis	N° Sample	Product (French name)	Product	Artificial contaminations					Global result		Category	Type
				Strain	Origin	Injury protocol	Inoculation level/sample		Bio-Rad CFX96	BMS Mic qPCR		
							Enumeration	Mean				
2021	2080	Pédichiffonnette	Boot sock	S. Anatum Ad1108	Primary production sample	Seeding 24h at ambient temperature	0-2-1-2-0	1,0	-	-	3	a
2021	2599	Pédichiffonnette	Boot sock	S. Enteritidis Ad2970	Primary production sample	Seeding 24h at ambient temperature	0-2-1-1-3	1,4	-	-	3	a
2021	2600	Fécès	Faeces	S. Agama Ad2949	Primary production sample	Seeding 24h at ambient temperature	1-1-1-0-2	1,0	-	-	3	a
2021	2602	Fécès	Faeces	S. Agama Ad2949	Primary production sample	Seeding 24h at ambient temperature	1-1-1-0-2	1,0	-	-	3	a
2021	2603	Pédichiffonnette	Boot sock	S. Llandoff Ad3252	Primary production sample	Seeding 24h at ambient temperature	0-0-1-3-4	1,6	-	-	3	a
2021	2853	Fécès	Faeces	S. Haifa Ad1727	Primary production sample	Seeding 24h at ambient temperature	1-7-5-4-5	4,4	+	+	3	a
2021	2854	Fécès	Faeces	S. Typhimurium Ad1411	Primary production sample	Seeding 24h at ambient temperature	3-4-6-5-6	4,8	+	+	3	a
2021	2855	Fécès	Faeces	S. Hadar 35	Primary production sample	Seeding 24h at ambient temperature	0-3-10-5-6	4,8	+	+	3	a
2021	2856	Fécès	Faeces	S. Haifa Ad1727	Primary production sample	Seeding 24h at ambient temperature	1-7-5-4-5	4,4	+	+	3	a
2021	2857	Pédichiffonnette	Boot sock	S. Typhimurium Ad1411	Primary production sample	Seeding 24h at ambient temperature	3-4-6-5-6	4,8	+	+	3	a
2021	2858	Pédichiffonnette	Boot sock	S. Hadar 35	Primary production sample	Seeding 24h at ambient temperature	0-3-10-5-6	4,8	+	+	3	a
2021	2862	Pédichiffonnette	Boot sock	S. Haifa Ad1727	Primary production sample	Seeding 24h at ambient temperature	1-7-5-4-5	4,4	+	+	3	a
2021	4284	Fécès	Faeces	S. Agona Ad1306	Primary production sample	Seeding 24h at ambient temperature	1-1-1-2-3	1,6	+	+	3	a
2021	4285	Fécès	Faeces	S. Adelaide Ad2319	Primary production sample	Seeding 24h at ambient temperature	3-5-1-2-3	2,8	+	+	3	a
2021	1480	Eau abreuvoir	Drinking water	S. Mbandaka Ad3201	Primary production sample	Seeding 24h at ambient temperature	2-1-1-5-2	2,2	+	+	3	b
2021	1481	Eau abreuvoir	Drinking water	S. Kentucky Ad1756	Primary production sample	Seeding 24h at ambient temperature	1-2-2-4-2	2,2	+	+	3	b
2021	1484	Chiffonnette (mur)	Wipe (wall)	S. Livingstone Ad1107	Primary production sample	Seeding 24h at ambient temperature	2-2-2-1-1	1,6	-	-	3	b
2021	1485	Chiffonnette (assiette)	Wipe (plate)	S. Infantis Ad1404	Primary production sample	Seeding 24h at ambient temperature	2-5-4-1-2	2,8	+	+	3	b
2021	1486	Chiffonnette (paroi)	Wipe (wall)	S. Mbandaka Ad3201	Primary production sample	Seeding 24h at ambient temperature	2-1-1-5-2	2,2	+	+	3	b
2021	1487	Chiffonnette (pipette)	Wipe (pipette)	S. Kentucky Ad1756	Primary production sample	Seeding 24h at ambient temperature	1-2-2-4-2	2,2	-	-	3	b
2021	1490	Litière	Litter	S. Mbandaka Ad3201	Primary production sample	Seeding 24h at ambient temperature	2-1-1-5-2	2,2	-	-	3	b
2021	1491	Litière	Litter	S. Kentucky Ad1756	Primary production sample	Seeding 24h at ambient temperature	1-2-2-4-2	2,2	-	-	3	b
2021	2076	Litière	Litter	S. Djugu Ad2969	Primary production sample	Seeding 24h at ambient temperature	0-0-0-1-1	0,4	-	-	3	b
2021	2077	Litière	Litter	S. Anatum Ad1108	Primary production sample	Seeding 24h at ambient temperature	0-2-1-2-0	1,0	-	-	3	b
2021	2081	Eponge (perchoir)	Sponge (perch)	S. Virchow 187	Primary production sample	Seeding 24h at ambient temperature	1-0-3-3-1	1,6	+	+	3	b
2021	2598	Eau abreuvoir	Drinking water	S. Llandoff Ad3252	Primary production sample	Seeding 24h at ambient temperature	0-0-1-3-4	1,6	+	+	3	b
2021	2601	Eau abreuvoir	Drinking water	S. Enteritidis Ad2970	Primary production sample	Seeding 24h at ambient temperature	0-2-1-1-3	1,4	-	-	3	b
2021	2604	Chiffonnette (perchoir)	Wipe (perch)	S. Enteritidis Ad2970	Primary production sample	Seeding 24h at ambient temperature	0-2-1-1-3	1,4	+	+	3	b
2021	2605	Chiffonnette (pondoir)	Wipe (hatchery)	S. Agama Ad2949	Primary production sample	Seeding 24h at ambient temperature	1-1-1-0-2	1,0	-	-	3	b
2021	2606	Litière	Litter	S. Llandoff Ad3252	Primary production sample	Seeding 24h at ambient temperature	0-0-1-3-4	1,6	-	-	3	b
2021	2859	Eau abreuvoir	Drinking water	S. Haifa Ad1727	Primary production sample	Seeding 24h at ambient temperature	1-7-5-4-5	4,4	+	+	3	b
2021	2860	Litière	Litter	S. Typhimurium Ad1411	Primary production sample	Seeding 24h at ambient temperature	3-4-6-5-6	4,8	-	-	3	b
2021	2861	Chiffonnette lumière poulailler	Wipe (henhouse light)	S. Hadar 35	Primary production sample	Seeding 24h at ambient temperature	0-3-10-5-6	4,8	-	-	3	b
2021	2863	Chiffonnette mur poulailler	Wipe (wall)	S. Typhimurium Ad1411	Primary production sample	Seeding 24h at ambient temperature	3-4-6-5-6	4,8	+	+	3	b
2021	4286	Eau abreuvoir	Drinking water	S. Agona Ad1306	Primary production sample	Seeding 24h at ambient temperature	1-1-1-2-3	1,6	+	+	3	b
2021	4287	Eau abreuvoir	Drinking water	S. Adelaide Ad2319	Primary production sample	Seeding 24h at ambient temperature	3-5-1-2-3	2,8	+	+	3	b
2021	4833	Chiffonnette couvoir	Wipe (hatchery)	S. Mbandaka Ad1720	Primary production sample	Seeding 24h at ambient temperature	2-2-2-4-1	2,2	+	+	3	b
2021	4834	Chiffonnette abreuvoir	Wipe (trough)	S. Anatum Ad1108	Primary production sample	Seeding 24h at ambient temperature	2-1-3-5-7	3,6	+	+	3	b
2021	4835	Chiffonnette paroi	Wipe (wall)	S. Kentucky Ad1756	Primary production sample	Seeding 24h at ambient temperature	5-1-7-4-6	4,6	+	+	3	b
2021	4836	Eau abreuvoir	Drinking water	S. Mbandaka Ad1720	Primary production sample	Seeding 24h at ambient temperature	2-2-2-4-1	2,2	+	+	3	b
2021	4837	Eau abreuvoir	Drinking water	S. Anatum Ad1108	Primary production sample	Seeding 24h at ambient temperature	2-1-3-5-7	3,6	-	-	3	b

Appendix 4 – Sensitivity study: raw data

Bold typing: artificially inoculated samples

Salmonella detection results:

m:	minority level of target analyte
M :	majority level of target analyte
P:	pure culture level of target analyte
1/2 :	50% level of target analyte
(x):	number of colonies in the plate
-:	no typical colonies but presence of background microflora
st:	plate without any colony
d:	doubtful result
PA:	positive agreement
NA:	negative agreement
ND:	negative deviation
PD:	positive deviation
PPNA:	positive presumptive negative agreement
PPND :	positive presumptive negative deviation

RAW POULTRY MEATS																					
Date of analysis	N° Sample	Product (French name)	Product	Reference method: ISO 6579-1*					Alternative method: IDEXX Salmonella Species DNA Test Kit											Category	Type
				RVS		MKTTn		Result	PCR						Confirmatory tests (ISO 6579-1)	Final result		Agreement			
				XLD	ASAP	XLD	ASAP		Bio-Rad CFX96		BMS Mic qPCR		Bio-Rad CFX96	BMS Mic qPCR							
									Cq (FAM)	Cq (HEX)	Result	Cq (FAM)				Cq (HEX)	Result				
2021	1273	Filet poulet	Chicken fillet	-	-	-	-	-	No Ct	29.70	-	No Ct	28,59	-	-	-	-	NA	NA	1	a
2021	1274	Cuisse de poulet fermier	Chicken thigh	-	-	-	-	-	No Ct	29.71	-	No Ct	28,71	-	-	-	-	NA	NA	1	a
2021	1275	Cuisse de poulet fermier	Chicken thigh	-	-	-	-	-	No Ct	29.77	-	No Ct	28,58	-	-	-	-	NA	NA	1	a
2021	1276	Viande de poulet	Chicken meat	-	-	-	-	-	No Ct	29.82	-	No Ct	28,49	-	-	-	-	NA	NA	1	a
2021	1277	Blanquette de dinde	Turkey meat	-	-	+m/-	-	-	No Ct	29.70	-	No Ct	28,51	-	-	-	-	NA	NA	1	a
2021	1278	Cuisse de poulet	Chicken thigh	-	-	-	-	-	No Ct	29.86	-	No Ct	28,57	-	-	-	-	NA	NA	1	a
2021	1279	Cuisse et suprême de coquelet	Cockerel meat	-	-	-	-	-	No Ct	29.83	-	No Ct	28,59	-	-	-	-	NA	NA	1	a
2021	1282	Filet de dinde	Turkey fillet	+m/+	+m	+M/+	+M	+	27.04	29.46	+	26.99	28,64	+	+	+	+	PA	PA	1	a
2021	1283	Pilon de poulet	Chicken meat	-	-	-	-	-	No Ct	29.87	-	No Ct	29,11	-	-	-	-	NA	NA	1	a
2021	1284	Viande de poulet rôti	Roast chicken meat	+m	+m	+m/+	+m/+	+	39.19	29.72	+	39,24	28,36	+	+	+	+	PA	PA	1	a
2021	1285	VSM dinde	Turkey meat	-	-	+m/+ (Citrobacter)	-	-	No Ct	29.59	-	No Ct	28,53	-	-	-	-	NA	NA	1	a
2021	1287	Escalope de dinde	Turkey meat	-	-	-	-	-	No Ct	29.63	-	No Ct	28,65	-	-	-	-	NA	NA	1	a
2021	1288	Cuisse de poulet fermier	Chicken thigh	-	-	-	-	-	No Ct	29.75	-	No Ct	28,67	-	-	-	-	NA	NA	1	a
2021	1289	Filet de dinde	Turkey fillet	-	-	-	-	-	No Ct	29.89	-	No Ct	28,67	-	-	-	-	NA	NA	1	a
2021	1551	Blanc de poulet	Chicken breast	+m	+1/2	+M	+M	+	33.21	30.26	+	33,91	28,57	+	+	+	+	PA	PA	1	a
2021	1552	Filet de pintade	Guinea fowl meat	+m	+1/2	+M	+M	+	37.47	30.28	+	36,88	28,60	+	+	+	+	PA	PA	1	a
2021	1553	Cuisse de poulet	Chicken thigh	+M	+M	+M	+M	+	27.55	29.73	+	27,72	28,51	+	+	+	+	PA	PA	1	a
2021	1554	Escalope de poulet	Chicken breast	+m	+ 1/2	+M	+M	+	37.92	30.19	+	38,12	28,73	+	+	+	+	PA	PA	1	a
2021	1555	Escalope de dinde	Turkey breast	+1/2	+1/2	+M	+M	+	36.73	30.34	+	38,80	28,54	+	+	+	+	PA	PA	1	a
2021	1641	Poulet éviscéré sans abats	Raw chicken meat	-	-	-	-	-	No Ct	29.93	-	No Ct	28,87	-	-	-	-	NA	NA	1	a
2021	1642	Pintade fermière éviscérée sans abats	Raw guinea fowl meat	-	-	-	-	-	No Ct	29.86	-	No Ct	29,67	-	-	-	-	NA	NA	1	a
2021	1643	Poulet blanc fermier sans abats	Raw chicken meat	-	-	-	-	-	No Ct	30.01	-	No Ct	29,58	-	-	-	-	NA	NA	1	a
2021	1644	Pintade sans abats	Raw guinea fowl meat	-	-	-	-	-	No Ct	30.06	-	No Ct	28,63	-	-	-	-	NA	NA	1	a
2021	1645	Coquelet sans abats	Raw cockerel meat	-	-	-	-	-	No Ct	29.85	-	No Ct	28,54	-	-	-	-	NA	NA	1	a
2021	2374	Préparation viande de dinde	Raw turkey meat	-	-	-	-	-	No Ct	30.11	-	No Ct	28,51	-	-	-	-	NA	NA	1	a
2021	2375	Cuisse de dindonneau	Raw turkey meat	-	-	-	-	-	No Ct	30.12	-	No Ct	28,44	-	-	-	-	NA	NA	1	a
2021	2648	Viande de filet de poulet	Raw chicken fillet meat	-	-	-	-	-	No Ct	30.23	-	No Ct	28,65	-	-	-	-	NA	NA	1	a
2021	3985	Cuisse de dinde	Turkey meat	+m	+1/2	+M	+M	+	23,26	29,71	+	23,05	28,23	+	+	+	+	PA	PA	1	a
2021	4451	VSM volaille	Mechanically deboned poultry meat	+(3)	+m	+1/2	+M	+	33.34	29.79	+	33,87	28,58	+	+	+	+	PA	PA	1	a
2021	4591	Carcasse de poulet fermier	Chicken carcass	-	+(1)/+ (Aeromonas)	+md/-	+md/+ (Aeromonas)	-	No Ct	30.10	-	No Ct	28,69	-	-	-	-	NA	NA	1	a
2021	4592	Carcasse de coquelet	Cockerel carcass	+m/+	+m/+	+M	+M	+	37.11	30.13	+	37,78	28,45	+	+	+	+	PA	PA	1	a
2021	1286	Cuisse de poulet congelée	Frozen chicken leg	-	-	-	-	-	No Ct	29.62	-	No Ct	28,43	-	-	-	-	NA	NA	1	b
2021	1565	Sot l'y laisse de dinde surgelé	Frozen turkey meat	+(4)	+1/2	+M	+M	+	27.45	29.63	+	27,89	28,36	+	+	+	+	PA	PA	1	b
2021	1566	Osso bucco de dinde surgelé	Frozen turkey meat	+m	+1/2	+M	+M	+	25.24	29.53	+	24,39	28,49	+	+	+	+	PA	PA	1	b
2021	1567	Cuisse de pintade surgelée	Frozen guinea fowl leg	-	+(1)	+(3)	+m	+	33.24	29.22	+	33,47	28,88	+	+	+	+	PA	PA	1	b
2021	1568	Emincé de poulet surgelé	Frozen minced chicken meat	+m	+1/2	+M	+M	+	28.00	29.43	+	27,64	28,75	+	+	+	+	PA	PA	1	b
2021	1569	Cuisse de poulet surgelée	Frozen chicken leg	+md/-	-	+ md/-	+m/-	-	No Ct	29.31	-	No Ct	28,94	-	-	-	-	NA	NA	1	b
2021	1570	Suprême de pintade surgelé	Frozen guinea fowl meat	+m	+m	+M	+M	+	28.72	29.46	+	27,94	28,48	+	+	+	+	PA	PA	1	b
2021	1571	Filet de poulet bio surgelé	Frozen chicken fillet	+M	+M	+M	+p	+	22.23	29.40	+	21,75	28,20	+	+	+	+	PA	PA	1	b
2021	1572	Haut de cuisse de poulet surgelée	Frozen chicken thigh top	+m	+1/2	+M	+M	+	29.05	29.40	+	29,25	28,92	+	+	+	+	PA	PA	1	b
2021	1573	Pilon de poulet surgelé	Frozen chicken meat	+m	+M	+M	+M	+	25.89	29.25	+	25,49	28,39	+	+	+	+	PA	PA	1	b
2021	1574	Sauté de dinde surgelé	Frozen turkey meat	+m	+1/2	+M	+M	+	24.82	29.39	+	24,93	28,40	+	+	+	+	PA	PA	1	b

* Analyses performed according to the COFRAC accreditation

RAW POULTRY MEATS																					
Date of analysis	N° Sample	Product (French name)	Product	Reference method: ISO 6579-1*					Alternative method: IDEXX Salmonella Species DNA Test Kit											Category	Type
				RVS		MKTTn		Result	PCR						Final result		Agreement				
				XLD	ASAP	XLD	ASAP		Bio-Rad CFX96			BMS Mic qPCR			Confirmatory tests (ISO 6579-1)	Bio-Rad CFX96	BMS Mic qPCR	Bio-Rad CFX96	BMS Mic qPCR		
									Cq (FAM)	Cq (HEX)	Result	Cq (FAM)	Cq (HEX)	Result							
2021	2651	Carcasse de poulet entier congelée	Frozen chicken carcass	-	-	+m d (Citrobacter)	-	-	No Ct	30.10	-	No Ct	28,82	-	-	-	-	NA	NA	1	b
2021	4603	Filet de poulet surgelé	Frozen chicken fillet	-	-	-	-	-	No Ct	30.04	-	No Ct	28,62	-	-	-	-	NA	NA	1	b
2021	4604	Pilon de poulet surgelé	Frozen chicken leg	-	-	+d/-	-	-	No Ct	30.00	-	No Ct	28,92	-	-	-	-	NA	NA	1	b
2021	4605	Haut de cuisse de poulet avec dos surgelé	Frozen chicken leg	-	-	-	-	-	No Ct	30.19	-	No Ct	28,56	-	-	-	-	NA	NA	1	b
2021	4606	Sauté de dinde surgelé	Frozen turkey meat	-	-	-	-	-	No Ct	29.97	-	No Ct	28,72	-	-	-	-	NA	NA	1	b
2021	4607	Cuisse de pintade sous vide surgelée	Frozen guinea fowl leg	-	+m/-	+d/-	+md/-	-	No Ct	30.04	-	No Ct	28,48	-	-	-	-	NA	NA	1	b
2021	4608	Sot l'y laisse de dinde surgelé	Frozen turkey meat	-	-	-	-	-	No Ct	30.01	-	No Ct	28,45	-	-	-	-	NA	NA	1	b
2021	4609	Poulet blanc surgelé	Frozen chicken meat	-	-	-	-	-	No Ct	29.99	-	No Ct	28,56	-	-	-	-	NA	NA	1	b
2021	4610	Coquelet surgelé	Frozen cockerel	-	-	-	-	-	No Ct	30.09	-	No Ct	28,56	-	-	-	-	NA	NA	1	b
2021	1280	Cuisse de poulet paprika à la mexicaine	Seasoned chicken thigh	-	-	-	-	-	No Ct	29.70	-	No Ct	28,39	-	-	-	-	NA	NA	1	c
2021	1281	Paupiette de dinde Orloff	Seasoned turkey meat	-	-	-	-	-	No Ct	29.91	-	No Ct	28,57	-	-	-	-	NA	NA	1	c
2021	1545	Saucisses nature de volaille bio	Poultry sausages	-	-	-	-	-	No Ct	30.27	-	No Ct	28,60	-	-	-	-	NA	NA	1	c
2021	1546	Saucisses nature de volaille bio	Poultry sausages	+d(1)	+1/2/	+m	+1/2	+	No Ct/ No Ct/ No Ct	30.23/ 28.41/ 29.52	-/-	No Ct/ No Ct/ No Ct	28,66/ 29,02/ 28,89	-/- -/-	+	-	-	ND	ND	1	c
2021	1547	Poulet mariné	Marinated chicken	+m	+1/2	+M	+M	+	33.39	30.41	+	31,15	28,63	+	+	+	+	PA	PA	1	c
2021	1548	Poulet mariné	Marinated chicken	+m	+M	+M	+M	+	30.07	30.33	+	29,00	28,50	+	+	+	+	PA	PA	1	c
2021	1549	Emincé de dinde mariné	Minced marinated turkey	-	-	+d/-	-	-	No Ct	30.30	-	No Ct	28,64	-	-	-	-	NA	NA	1	c
2021	1550	Brochette de dinde marinée	Marinated turkey meat	+d/-	-	+d/-	-	-	No Ct	30.42	-	No Ct	28,74	-	-	-	-	NA	NA	1	c
2021	2649	Manchons de poulet marinés au chorizo	Marinated chicken meat	-	-	-	-	-	No Ct	30.14	-	No Ct	28,65	-	-	-	-	NA	NA	1	c
2021	2650	Manchons de poulet marinés au chorizo	Marinated chicken meat	-	-	-	-	-	No Ct	30.08	-	No Ct	28,72	-	-	-	-	NA	NA	1	c
2021	2811	Merguez de volaille	Poultry merguez	-	-	-	-	-	No Ct	29.78	-	No Ct	28,48	-	-	-	-	NA	NA	1	c
2021	2812	Aiguillettes de poulet marinées thym citron	Marinated chicken meat	+m	+1/2	+M	+M	+	30.33	30.07	+	31,59	28,50	+	+	+	+	PA	PA	1	c
2021	2813	Saucisse de volaille	Poultry sausages	-	-	-	-	-	No Ct	29.50	-	No Ct	28,63	-	-	-	-	NA	NA	1	c
2021	2814	Cuisses de poulet à la mexicaine	Marinated chicken meat	-	+md/+	-	+md/+	+	No Ct/ No Ct/ 38,16	29.65/ 30.07/ 30.19	-/ /+	No Ct/ No Ct/ No Ct	28,73/ 29,03/ 28,91	-/ -/ -/-	+	-	-	ND	ND	1	c
2021	2815	Cuisses de poulet au paprika	Marinated chicken meat	-	-	-	-	-	No Ct	29.63	-	No Ct	28,69	-	-	-	-	NA	NA	1	c
2021	2816	Ailerons de poulet à la mexicaine	Marinated chicken meat	+m	+1/2	+m/+	+m	+	35.79	29.71	+	36,94	28,61	+	+	+	+	PA	PA	1	c
2021	2817	Hauts de cuisse de poulet au paprika	Marinated chicken meat	+m	+1/2	+1/2	+M	+	27.36	29.86	+	27,35	28,48	+	+	+	+	PA	PA	1	c
2021	2818	Ailerons de poulet marinées barbecue	Marinated chicken meat	+m	+1/2	+m	+M	+	30.47	29.64	+	31,98	28,51	+	+	+	+	PA	PA	1	c
2021	4601	Emincés de poulet mariné	Marinated sliced chicken meat	-	-	-	-	-	36.95	30.12	+	No Ct/ No Ct/ 37,68	28,61/ 28,26/ 28,31	-/ /+	+	+	+	PD	NA	1	c
2021	4602	Emincés de poulet mariné	Marinated sliced chicken meat	-	-	+(1)d/-	-	-	No Ct	30.00	-	No Ct	28,38	-	-	-	-	NA	NA	1	c
2021	4846	Brochette de poulet mariné	Marinated chicken meat	+d(1) /+	+md/-	+d/+	+1/2/+	+	32.21	29.64	+	31,34	28,43	+	+	+	+	PA	PA	1	c
2021	4847	Cuisse de poulet marinée à la mexicaine	Marinated chicken meat	+m/+	+M	+M	+M	+	27.17	29.62	+	28,24	28,58	+	+	+	+	PA	PA	1	c
2021	4848	Cuisse poulet marinée basilic	Marinated chicken meat	+M	+M	+M	+M	+	24.35	29.40	+	24,49	28,58	+	+	+	+	PA	PA	1	c

POULTRY ENVIRONMENTAL PRODUCTION																					
Date of analysis	N° Sample	Product (French name)	Product	Reference method: ISO 6579-1*					Alternative method: IDEXX Salmonella Species DNA Test Kit											Category	Type
				RVS		MKTTn		Result	PCR						Confirmatory tests (ISO 6579-1)	Final result		Agreement			
				XLD	ASAP	XLD	ASAP		Bio-Rad CFX96		BMS Mic qPCR		Bio-Rad CFX96	BMS Mic qPCR		Bio-Rad CFX96	BMS Mic qPCR				
									Cq (FAM)	Cq (HEX)	Result	Cq (FAM)						Cq (HEX)	Result		
2021	1577	Déchets de volaille	Residues	+m	+1/2	+M	+1/2	+	26.58	29.82	+	27,20	28,79	+	+	+	+	PA	PA	2	a
2021	2837	Résidus déplumeuse	Residues	-	-	-	-	-	No Ct	29.57	-	No Ct	29,00	-	-	-	-	NA	NA	2	a
2021	2840	Déchets cou éviscération	Residues	-	-	-	-	-	No Ct	29.64	-	No Ct	28,60	-	-	-	-	NA	NA	2	a
2021	2841	Déchets déplumeuse	Residues	-	-	-	-	-	No Ct	29.73	-	No Ct	28,62	-	-	-	-	NA	NA	2	a
2021	2845	Déchets poulet découpe	Residues	-	-	-	-	-	No Ct	29.57	-	No Ct	28,55	-	-	-	-	NA	NA	2	a
2021	2864	Résidus abattoir	Residues	-	-	-	-	-	No Ct	30.18	-	No Ct	28,74	-	-	-	-	NA	NA	2	a
2021	2867	Déchets éviscération	Residues	+m	+M	+1/2	+M	+	38.01	30.34	+	No Ct	29.02	-	+	+	+	PA	PA	2	a
2021	2871	Déchets de poulets	Residues	-	+d/+	+m	+m	+	35.78	30.13	+	35,79	28,86	+	+	+	+	PA	PA	2	a
2021	4442	Débris sol échaudage	Wastes	+md/-	+md/+	+md/+	-	+	No Ct/ No Ct/ 38.56	29.65/ 29.46/ 29.50	-/+ /+	No Ct/ No Ct/ No Ct	29,06/ 29,08/ 29,06	-/-	+	-	-	ND	ND	2	a
2021	4443	Résidus graisse bac dégraisseur	Wastes	-	-	-	-	-	No Ct	29.83	-	No Ct	28,58	-	-	-	-	NA	NA	2	a
2021	4444	Liquide saignée	Wastes	+md/-	+md/-	-	-	-	No Ct	29.91	-	No Ct	28,67	-	-	-	-	NA	NA	2	a
2021	4445	Trémie récupérateur à l'éviscération	Wastes	-	-	-	-	-	No Ct	29.73	-	No Ct	28,68	-	-	-	-	NA	NA	2	a
2021	4446	Débris plume sol	Wastes	-	-	-	-	-	No Ct	29.81	-	No Ct	28,41	-	-	-	-	NA	NA	2	a
2021	4447	Débris plumeuse	Wastes	+md/+ (Proteus mirabilis)	-	+md/-	-	-	No Ct	29.92	-	No Ct	28,78	-	-	-	-	NA	NA	2	a
2021	4478	Liquide saignée	Wastes	+(1)/-	-	-	-	-	No Ct	29.91	-	No Ct	29,06	-	-	-	-	NA	NA	2	a
2021	4482	Grit sur sol	Wastes	-	+d/+	+d/+	+m	+	No Ct/ No Ct/ 38.08	29.85/ 29.51/ 29.37	-/+ /+	38,63	28,10	+	+	-	+	ND	PA	2	a
2021	4593	Liquide de saignée	Wastes	+m/+	-	+m/+	+(1)	+	No Ct/ No Ct/ No Ct	30.06/ 29.40/ 29.42	-/-	No Ct/ No Ct/ No Ct	28,66/ 28,89/ 29,18	-/-	+	-	-	ND	ND	2	a
2021	4597	Grit sur sol	Wastes	-	-	+md/-	+d/-	-	No Ct	29.97	-	No Ct	28,67	-	-	-	-	NA	NA	2	a
2021	4843	Déchets sol (dinde)	Wastes	-	+1/2	+1/2	+M	+	35.41	29.47	+	35,78	28,52	+	+	+	+	PA	PA	2	a
2021	4844	Déchets sol (pintade)	Wastes	+m/+	+m	+1/2	+M	+	31.77	29.42	+	31,73	28,61	+	+	+	+	PA	PA	2	a
2021	4845	Déchets sol (poulet)	Wastes	+1/2/+	+M	+M	+M	+	26.33	29.61	+	26,56	28,84	+	+	+	+	PA	PA	2	a
2021	1576	Eau rinçage jambon de volaille	Cleaning water	st	st	-	st	-	No Ct	30.06	-	No Ct	28,49	-	-	-	-	NA	NA	2	b
2021	2839	Eau de lavage gouttière éviscération	Cleaning water	-	-	-	-	-	No Ct	29.65	-	No Ct	28,72	-	-	-	-	NA	NA	2	b
2021	2842	Eau de process	Process water	-	-	-	-	-	No Ct	29.39	-	No Ct	28,72	-	-	-	-	NA	NA	2	b
2021	2846	Eau de rinçage	Rinsing water	st	st	st	st	-	No Ct	29.54	-	No Ct	28,59	-	-	-	-	NA	NA	2	b
2021	2866	Eau de lavage gouttière éviscération	Cleaning water	+m	+1/2	+m	+M	+	34.15	30.22	+	33,45	28,56	+	+	+	+	PA	PA	2	b
2021	2868	Eau de process	Process water	-	+m	-	+M	+	28.33	30.21	+	27,33	28,48	+	+	+	+	PA	PA	2	b
2021	2873	Eau de rinçage	Rinsing water	st	st	st	st	-	No Ct	30.17	-	No Ct	28,79	-	-	-	-	NA	NA	2	b
2021	4448	Eau du bac échaudage	Process water	-	-	+md/-	-	-	No Ct	29.86	-	No Ct	28,46	-	-	-	-	NA	NA	2	b
2021	4449	Eau lavage couteaux	Cleaning water	st	st	st	st	-	No Ct	29.82	-	No Cq	28,57	-	-	-	-	NA	NA	2	b
2021	4450	Eau du bac échaudage	Process water	-	-	-	-	-	No Ct	29.79	-	No Ct	28,94	-	-	-	-	NA	NA	2	b
2021	4476	Eau du bac échaudage	Process water	+m	+M	+M	+p	+	21.61	29.57	+	22,21	28,04	+	+	+	+	PA	PA	2	b
2021	4477	Eau du bac échaudage	Process water	+M	+M	+M	+p	+	24.38	29.86	+	24,24	28,37	+	+	+	+	PA	PA	2	b
2021	4483	Eau lavage couteaux	Cleaning water	st	st	st	st	-	No Ct	30.00	-	No Ct	28,59	-	-	-	-	NA	NA	2	b
2021	4484	Eau lavage couteaux	Cleaning water	st	st	st	st	-	No Ct	29.98	-	No Cq	28,70	-	-	-	-	NA	NA	2	b
2021	4599	Eau du bac échaudage	Process water	+m/+	+m/+	+M	+M	+	28.87	30.03	+	29,01	28,52	+	+	+	+	PA	PA	2	b
2021	4600	Eau du bac échaudage	Process water	+m/+	+m/+	+M	+M	+	29.54	29.93	+	29,27	28,66	+	+	+	+	PA	PA	2	b
2021	4838	Eau de process (pintade)	Process water	+M	+p	+M	+p	+	17.88	29.33	+	17,44	28,31	+	+	+	+	PA	PA	2	b
2021	4839	Eau de rinçage (dinde)	Rinsing water	+M	+p	+M	+p	+	22.64	29.27	+	22,41	27,82	+	+	+	+	PA	PA	2	b
2021	4840	Eau de rinçage (dinde)	Rinsing water	+M	+M	+M	+p	+	26.51	29.45	+	25,63	28,36	+	+	+	+	PA	PA	2	b
2021	4841	Eau de rinçage (dinde)	Rinsing water	-	+p	-	+p	+	22.88	29.20	+	22,77	28,28	+	+	+	+	PA	PA	2	b
2021	4842	Eau de rinçage (poulet)	Rinsing water	-	+M	-	+M	+	23.36	29.28	+	23,36	28,13	+	+	+	+	PA	PA	2	b

* Analyses performed according to the COFRAC accreditation

POULTRY ENVIRONMENTAL PRODUCTION																										
Date of analysis	N° Sample	Product (French name)	Product	Reference method: ISO 6579-1*					Alternative method: IDEXX Salmonella Species DNA Test Kit											Category	Type					
				RVS		MKTTn		Result	PCR						Confirmatory tests (ISO 6579-1)	Final result		Agreement								
				XLD	ASAP	XLD	ASAP		Bio-Rad CFX96		BMS Mic qPCR		Result	Cq (FAM)		Cq (HEX)	Result	Cq (FAM)	Cq (HEX)			Result	Bio-Rad CFX96	BMS Mic qPCR	Bio-Rad CFX96	BMS Mic qPCR
									Cq (FAM)	Cq (HEX)	Cq (FAM)	Cq (HEX)														
2021	1575	Chiffonnette cutter volaille	Wipe (cutter)	+p	+p	+M	+p	+	19.93	29.37	+	20,58	27,97	+	+	+	+	PA	PA	2	c					
2021	1952	Chiffonnette plan de travail volaille	Wipe (worktop)	+m	+m	+M	+M	+	28.42	29.22	+	27,68	28,70	+	+	+	+	PA	PA	2	c					
2021	1953	Chiffonnette plan de travail volaille	Wipe (worktop)	+md/+	+m/+	+M	+M	+	27.47	29.25	+	27,13	28,59	+	+	+	+	PA	PA	2	c					
2021	1954	Chiffonnette couteau volaille	Wipe (knife)	-	-	-	-	-	No Ct	29.33	-	No Ct	28,63	-	-	-	-	NA	NA	2	c					
2021	1955	Chiffonnette louche volaille	Wipe (ladle)	-	-	-	-	-	No Ct	29.32	-	No Ct	28,87	-	-	-	-	NA	NA	2	c					
2021	2838	Chiffonnette billot	Wipe	-	-	-	-	-	No Ct	29.63	-	No Ct	29,06	-	-	-	-	NA	NA	2	c					
2021	2843	Chiffonnette plumeuse	Wipe	-	-	-	-	-	No Ct	29.77	-	No Ct	28,49	-	-	-	-	NA	NA	2	c					
2021	2844	Chiffonnette crochet	Wipe	-	-	-	-	-	No Ct	29.72	-	No Ct	28,71	-	-	-	-	NA	NA	2	c					
2021	2865	Chiffonnette éviscération	Wipe	-	-	-	-	-	39.14	30.31	+	No Ct/ No Ct/ No Ct	28,49/ 28,20/ 28,43	-/-	+ (5x MKTTn)	+	-	PD	NA	2	c					
2021	2869	Chiffonnette rack poulets	Wipe	-	-	-	-	-	No Ct	30.35	-	No Ct	28,59	-	-	-	-	NA	NA	2	c					
2021	2870	Chiffonnette table de préparation	Wipe	-	-	-	-	-	No Ct	30.37	-	No Ct	28,68	-	-	-	-	NA	NA	2	c					
2021	2872	Chiffonnette zone de stockage	Wipe	+m	+M	+M	+M	+	29.84	30.22	+	29,06	28,67	+	+	+	+	PA	PA	2	c					
2021	4431	Ecouvillon plume doigts	Swab	-	+md/-	+md/+ (Citro. Youngae)	-	-	No Ct	30.09	-	No Ct	29,00	-	-	-	-	NA	NA	2	c					
2021	4432	Ecouvillon affuteuse couteaux	Swab	st	st	st	st	-	No Ct	30.07	-	No Ct	27,01	-	-	-	-	NA	NA	2	c					
2021	4433	Ecouvillon balance découpe	Swab	st	st	st	st	-	No Ct	30.06	-	No Ct	28,53	-	-	-	-	NA	NA	2	c					
2021	4434	Ecouvillon chaine éviscération	Swab	-	-	-	-	-	No Ct	29.91	-	No Ct	28,64	-	-	-	-	NA	NA	2	c					
2021	4435	Ecouvillon lavage gésiers	Swab	-	-	-	-	-	No Ct	29.99	-	No Ct	28,54	-	-	-	-	NA	NA	2	c					
2021	4436	Pédichiffonnette entrée abattoir	Wipe	-	-	+md/+ (Citro. Youngae)	-	-	No Ct	30.10	-	No Ct	28,57	-	-	-	-	NA	NA	2	c					
2021	4437	Pédichiffonnette quai réception volailles	Wipe	-	-	-	-	-	No Ct	30.21	-	No Ct	28,46	-	-	-	-	NA	NA	2	c					
2021	4438	Chiffonnette caisse salle de lavage	Wipe	st	st	st	st	-	No Ct	30.02	-	No Ct	27,29	-	-	-	-	NA	NA	2	c					
2021	4439	Chiffonnette table de découpe	Wipe	-	-	-	st	-	No Ct	29.94	-	No Ct	27,71	-	-	-	-	NA	NA	2	c					
2021	4440	Chiffonnette bac équarissage	Wipe	-	-	-	-	-	No Ct	29.88	-	No Ct	28,39	-	-	-	-	NA	NA	2	c					
2021	4441	Chiffonnette murs chambre resssuyage	Wipe	-	-	-	-	-	No Ct	29.79	-	No Ct	28,53	-	-	-	-	NA	NA	2	c					
2021	4471	Ecouvillon électronarcose	Swab	-	-	-	-	-	No Ct	29.95	-	No Ct	28,53	-	-	-	-	NA	NA	2	c					
2021	4472	Ecouvillon la parmantière	Swab	+M	+p	+M	+p	+	18.66	29.56	+	18,26	28,18	+	+	+	+	PA	PA	2	c					
2021	4473	Ecouvillon sous videuse	Swab	+p	+p	+p	+p	+	17.75	29.79	+	17,28	27,96	+	+	+	+	PA	PA	2	c					
2021	4474	Ecouvillon couteaux	Swab	+1/2	+M	+M	+p	+	20.19	29.51	+	19,82	27,93	+	+	+	+	PA	PA	2	c					
2021	4475	Ecouvillon balance découpe	Swab	-	-	-	-	-	No Ct	29.97	-	No Ct	28,50	-	-	-	-	NA	NA	2	c					
2021	4479	Pédichiffonnette local éviscération	Boot sock	+m	+m	+m	+m	+	35.93	29.95	+	38,12	28,50	+	+	+	+	PA	PA	2	c					
2021	4480	Chiffonnette murs chambre resssuyage	Wipe	+M	+p	+p	+p	+	18.47	29.52	+	18,24	28,03	+	+	+	+	PA	PA	2	c					
2021	4481	Chiffonnette table découpe	Wipe	-	-	-	-	-	No Ct	29.81	-	No Ct	28,54	-	-	-	-	NA	NA	2	c					
2021	4594	Ecouvillon lave main éviscération	Swab	st	st	st	st	-	No Ct	29.95	-	No Ct	28,50	-	-	-	-	NA	NA	2	c					
2021	4595	Chiffonnette mur chambre froide	Wipe	-	-	-	-	-	No Ct	30.25	-	No Ct	28,99	-	-	-	-	NA	NA	2	c					
2021	4596	Ecouvillon lave mains vestiaire	Swab	+M	+M pale	+M	+M pale	+	19.03	29.34	+	21,70	28,29	+	+	+	+	PA	PA	2	c					
2021	4598	Ecouvillon lavage couteaux	Swab	-	+(1)d/+	+m	+1/2	+	31.35	30.04	+	30,56	28,50	+	+	+	+	PA	PA	2	c					

POULTRY PRIMARY PRODUCTION SAMPLES (PPS)

Date of analysis	N° SG	Product (French name)	Product	Reference method ISO 6579-1 ♦						Alternative method: IDEXX Salmonella Species DNA Test Kit											Category	Type
				MSRV			Mktn			PCR after a subculture in MKTTN broth						Confirmatory tests (ISO 6579-1)	Final result		Agreement			
				Result	XLD	ASAP	XLD	ASAP	Result	Bio-Rad CFX96			BMS Mic qPCR				Bio-Rad CFX96	BMS Mic qPCR	Bio-Rad CFX96	BMS Mic qPCR		
										Cq (FAM)	Cq (HEX)	Result	Cq (FAM)	Cq (HEX)	Result							
2021	1294	Fécès	Faeces	-/-			-	-	-	No Ct	30.02	-	No Ct	28,61	-	-	-	-	NA	NA	3	a
2021	1295	Fécès	Faeces	-/-			-	-	-	No Ct	30.04	-	No Ct	28,60	-	-	-	-	NA	NA	3	a
2021	1296	Poussière	Dust	+d	-	-	-	-	-	No Ct	29.90	-	No Ct	28,44	-	-	-	-	NA	NA	3	b
2021	1297	Poussière	Dust	-/-			-	-	-	No Ct	29.85	-	No Ct	28,72	-	-	-	-	NA	NA	3	b
2021	1298	Litière	Litter	-/-			-	-	-	No Ct	30.03	-	No Ct	28,60	-	-	-	-	NA	NA	3	b
2021	1299	Litière	Litter	-/-			-	-	-	No Ct	30.03	-	No Ct	28,61	-	-	-	-	NA	NA	3	b
2021	1300	Pédichiffonnette	Boot sock	-/-			+ (3)d/+ (Citrobacter)	-	-	No Ct	29.97	-	No Ct	28,48	-	-	-	-	NA	NA	3	a
2021	1301	Pédichiffonnette	Boot sock	-/-			-	-	-	No Ct	29.91	-	No Ct	28,68	-	-	-	-	NA	NA	3	a
2021	1302	Chiffonnette (paroi)	Wipe (wall)	-/-			-	-	-	No Ct	29.94	-	No Ct	28,66	-	-	-	-	NA	NA	3	b
2021	1303	Chiffonnette (mur)	Wipe (wall)	+d	-	-	-	-	-	No Ct	29.89	-	No Ct	28,65	-	-	-	-	NA	NA	3	b
2021	1304	Chiffonnette (assiette)	Wipe (plate)	-/-			-	-	-	No Ct	29.89	-	No Ct	28,53	-	-	-	-	NA	NA	3	b
2021	1305	Chiffonnette (trémie)	Wipe (hopper)	-/-			-	-	-	No Ct	29.88	-	No Ct	28,50	-	-	-	-	NA	NA	3	b
2021	1480	Eau abreuvoir	Drinking water	+	+p	+p	+p	+p	+	18.08	29.48	+	18,85	28,27	+	+	+	+	PA	PA	3	b
2021	1481	Eau abreuvoir	Drinking water	+	+p	+p	+p	+p	+	18.05	29.36	+	18,48	28,13	+	+	+	+	PA	PA	3	b
2021	1482	Fèces	Faeces	-/+	+p	+p	+m	+1/2	+	21.23	29.51	+	22,00	27,95	+	+	+	+	PA	PA	3	a
2021	1483	Fèces	Faeces	+	+p	+p	+1/2	+M	+	21.76	29.52	+	22,35	28,06	+	+	+	+	PA	PA	3	a
2021	1484	Chiffonnette (mur)	Wipe (wall)	-/-			-	-	-	No Ct	29.82	-	No Ct	28,43	-	-	-	-	NA	NA	3	b
2021	1485	Chiffonnette (assiette)	Wipe (plate)	+	+p	+p	+M	+M	+	17.98	29.41	+	18,51	28,01	+	+	+	+	PA	PA	3	b
2021	1486	Chiffonnette (paroi)	Wipe (wall)	+	+p	+p	+M	+M	+	17.70	29.36	+	18,94	28,12	+	+	+	+	PA	PA	3	b
2021	1487	Chiffonnette (pipette)	Wipe (pipette)	-/-			-	-	-	No Ct	29.94	-	No Ct	28,39	-	-	-	-	NA	NA	3	b
2021	1488	Pédichiffonnette	Boot sock	-/-			-	-	-	No Ct	30.00	-	No Ct	28,27	-	-	-	-	NA	NA	3	a
2021	1489	Pédichiffonnette	Boot sock	+	+p	+p	+M	+M	+	17.09	29.44	+	17,81	27,92	+	+	+	+	PA	PA	3	a
2021	1490	Litière	Litter	-/-			-	-	-	No Ct	30.04	-	No Ct	28,55	-	-	-	-	NA	NA	3	b
2021	1491	Litière	Litter	-/-			-	-	-	No Ct	29.80	-	No Ct	28,42	-	-	-	-	NA	NA	3	b
2021	1525	Chiffonnette (abreuvoir)	Wipe (drinker)	-/-			-	-	-	No Ct	29.91	-	No Ct	28,66	-	-	-	-	NA	NA	3	b
2021	1526	Pédichiffonnette	Boot sock	-/-			-	-	-	No Ct	29.81	-	No Ct	28,48	-	-	-	-	NA	NA	3	a
2021	1527	Eau abreuvoir	Drinking water	-/-			-	-	-	No Ct	29.89	-	No Ct	28,69	-	-	-	-	NA	NA	3	b
2021	1528	Fèces	Faeces	-/-			-	-	-	No Ct	29.96	-	No Ct	28,41	-	-	-	-	NA	NA	3	a
2021	2073	Pédichiffonnette	Boot sock	-/-			-	st	-	No Ct	29.97	-	No Ct	28,50	-	-	-	-	NA	NA	3	a
2021	2074	Fécès	Faeces	+	+p	+p	+m	+M	+	17.63	29.43	+	18,18	28,22	+	+	+	+	PA	PA	3	a
2021	2075	Fécès	Faeces	+d	-	-	-	-	-	38.02/ 40,53/ No Ct	29.87/ 30,12 /30,22	+/-	No Ct	28,63	-	- (5x RVS/ MKTTn/ MSRV)	-	-	PPNA	NA	3	a
2021	2076	Litière	Litter	-/-			-	-	-	No Ct	29.98	-	No Ct	28,35	-	-	-	-	NA	NA	3	b
2021	2077	Litière	Litter	-/-			-	-	-	No Ct	29.96	-	No Ct	28,52	-	-	-	-	NA	NA	3	b
2021	2078	Fécès	Faeces	+	-	-	-	-	-	38.74	29.93	+	37,15	28,56	+	- (+ after a subculture in RVS)	+	+	PD	PD	3	a
2021	2079	Fécès	Faeces	+	H2S-	+p	-	-	+	17.72	29.49	+	18,81	28,09	+	+	+	+	PA	PA	3	a

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POULTRY PRIMARY PRODUCTION SAMPLES (PPS)

Date of analysis	N° SA	Product (French name)	Product	Reference method ISO 6579-1 *						Alternative method: IDEXX Salmonella Species DNA Test Kit										Category	Type		
				MSRV			Mktn			PCR after a subculture in MKTTN broth						Final result		Agreement					
				Result	XLD	ASAP	XLD	ASAP	Result	Bio-Rad CFX96		BMS Mic qPCR		Confirmatory tests (ISO 6579-1)	Bio-Rad CFX96	BMS Mic qPCR	Bio-Rad CFX96	BMS Mic qPCR					
										Cq (FAM)	Cq (HEX)	Result	Cq (FAM)						Cq (HEX)			Result	
2021	2080	Pédichiffonnette	Boot sock	+d	-	-	+d(1)/+ (Citrobacter. freundii)	-	-	-	No Ct	28.89	-	No Ct	28,36	-	-	-	-	NA	NA	3	a
2021	2081	Eponge (perchoir)	Sponge (perch)	-/+d	+M	+M	+d(1)/+	+M	+	+	19.55	29.32	+	20,60	27,88	+	+	+	+	PA	PA	3	b
2021	2464	Eau abreuvoir	Drinking water	-/-			-	-	-	-	No Ct	30.08	-	No Ct	28,66	-	-	-	-	NA	NA	3	b
2021	2465	Pédichiffonnette	Boot sock	-/-			-	-	-	-	No Ct	29.99	-	No Ct	28,50	-	-	-	-	NA	NA	3	a
2021	2466	Fécès	Faeces	-/-			-	-	-	-	39.11/ No Ct/ No Ct	30.04/ 30,28/ 29,78	+/-/-	No Ct	28,33	-	-	-	-	PPNA	NA	3	a
2021	2467	Litière	Litter	-/-			-	-	-	-	No Ct	30.09	-	No Ct	28,46	-	-	-	-	NA	NA	3	b
2021	2468	Chiffonnette (perchoir)	Wipe (perch)	-/-			-	-	-	-	No Ct	29.97	-	No Ct	28,37	-	-	-	-	NA	NA	3	b
2021	2469	Chiffonnette (poulailler)	Wipe (hatchery)	-/-			-	-	-	-	No Ct	30.01	-	No Ct	28,60	-	-	-	-	NA	NA	3	b
2021	2470	Fécès	Faeces	-/-			-	-	-	-	No Ct	29.92	-	No Ct	28,52	-	-	-	-	NA	NA	3	a
2021	2598	Eau abreuvoir	Drinking water	+	+p	+p	+M	+M	+	+	17.21	29.57	+	18,05	28,20	+	+	+	+	PA	PA	3	b
2021	2599	Pédichiffonnette	Boot sock	-/-			-	-	-	-	No Ct	30.01	-	No Ct	28,47	-	-	-	-	NA	NA	3	a
2021	2600	Fécès	Faeces	-/-			-	-	-	-	No Ct	29.94	-	No Ct	28,36	-	-	-	-	NA	NA	3	a
2021	2601	Eau abreuvoir	Drinking water	-/-			-	-	-	-	No Ct	30.03	-	No Ct	28,79	-	-	-	-	NA	NA	3	b
2021	2602	Fécès	Faeces	-/-			-	-	-	-	No Ct	29.98	-	No Ct	28,41	-	-	-	-	NA	NA	3	a
2021	2603	Pédichiffonnette	Boot sock	-/-			-	-	-	-	No Ct	30.01	-	No Ct	28,59	-	-	-	-	NA	NA	3	a
2021	2604	Chiffonnette (perchoir)	Wipe (perch)	-/-			+M	+M	+	+	No Ct/ No Ct/ No Ct	30.02/ 29,37/ 29,99	-/-/-	No Ct/ No Ct/ No Ct	28,57/ 28,31/ 28,35	-/-/-	+	-	-	ND	ND	3	b
2021	2605	Chiffonnette (poulailler)	Wipe (hatchery)	+d	-	-	st	st	-	-	No Ct	29.94	-	No Ct	28,05	-	-	-	-	NA	NA	3	b
2021	2606	Litière	Litter	-/-			-	-	-	-	No Ct	30.13	-	No Ct	28,56	-	-	-	-	NA	NA	3	b
2021	2847	Eau abreuvoir	Drinking water	-/-			-	-	-	-	No Ct	30.12	-	No Ct	28,62	-	-	-	-	NA	NA	3	b
2021	2848	Litière	Litter	-/-			-	-	-	-	No Ct	29.92	-	No Ct	28,34	-	-	-	-	NA	NA	3	b
2021	2849	Pédichiffonnette	Boot sock	-/-			-	-	-	-	No Ct	30.07	-	No Ct	28,69	-	-	-	-	NA	NA	3	a
2021	2850	Chiffonnette poussière mangeoire	Wipe (dusts)	-/-			-	-	-	-	No Ct	29.94	-	No Ct	28,39	-	-	-	-	NA	NA	3	b
2021	2851	Chiffonnette tuyau graines	Wipe (seed pipe)	-/-			-	-	-	-	No Ct	30.00	-	No Ct	28,43	-	-	-	-	NA	NA	3	b
2021	2853	Fécès	Faeces	+	+p	+p	+M	+M	+	+	19.73	29.43	+	17,92	27,98	+	+	+	+	PA	PA	3	a
2021	2854	Fécès	Faeces	+	+p	+p	+M	+p	+	+	22.37	29.55	+	21,37	28,20	+	+	+	+	PA	PA	3	a
2021	2855	Fécès	Faeces	+	+1/2	+p	+M	+M	+	+	23.52	29.70	+	22,26	28,14	+	+	+	+	PA	PA	3	a
2021	2856	Fécès	Faeces	+	+m	+md	+M	+M	+	+	23.94	29.67	+	22,52	28,16	+	+	+	+	PA	PA	3	a
2021	2857	Pédichiffonnette	Boot sock	+	+1/2	+m	+M	+M	+	+	20.61	29.38	+	19,38	28,16	+	+	+	+	PA	PA	3	a
2021	2858	Pédichiffonnette	Boot sock	+	+p	+p	+M	+M	+	+	20.09	29.39	+	18,99	28,10	+	+	+	+	PA	PA	3	a
2021	2859	Eau abreuvoir	Drinking water	-/-			+M	+1/2	+	+	26.21	30.06	+	24,02	28,25	+	+	+	+	PA	PA	3	b
2021	2860	Litière	Litter	-/-			-	-	-	-	No Ct	29.87	-	No Ct	28,67	-	-	-	-	NA	NA	3	b
2021	2861	Chiffonnette lumière poulailler	Wipe (henhouse light)	st/st			st	st	-	-	No Ct	29.92	-	No Ct	28,68	-	-	-	-	NA	NA	3	b
2021	2862	Pédichiffonnette	Boot sock	+	+M	+M	+M	+M	+	+	22.39	29.49	+	21,23	27,99	+	+	+	+	PA	PA	3	a
2021	2863	Chiffonnette mur poulailler	Wipe (wall)	+	+p	+p	+M	+M	+	+	20.25	29.17	+	18,95	28,04	+	+	+	+	PA	PA	3	b
2021	4192	Eau abreuvoir	Drinking water	st/st			st	st	-	-	No Ct	30.22	-	No Ct	28,62	-	-	-	-	NA	NA	3	b
2021	4193	Eau abreuvoir	Drinking water	st/st			st	st	-	-	No Ct	30.05	-	No Ct	28,70	-	-	-	-	NA	NA	3	b
2021	4194	Poussière	Dust	-/-			-	+d/-	-	-	No Ct	29.87	-	No Ct	28,46	-	-	-	-	NA	NA	3	b

POULTRY PRIMARY PRODUCTION SAMPLES (PPS)

Date of analysis	N° SA	Product (French name)	Product	Reference method ISO 6579-1 ♦						Alternative method: IDEXX Salmonella Species DNA Test Kit										Category	Type	
				MSRV			Mktn			PCR after a subculture in MKTTN broth						Final result		Agreement				
				Result	XLD	ASAP	XLD	ASAP	Result	Bio-Rad CFX96		BMS Mic qPCR		Confirmatory tests (ISO 6579-1)	Bio-Rad CFX96	BMS Mic qPCR	Bio-Rad CFX96	BMS Mic qPCR				
										Cq (FAM)	Cq (HEX)	Cq (FAM)	Cq (HEX)									
2021	4195	Poussière	Dust	+	-	-	-	-	-	No Ct	29.96	-	No Ct	28,42	-	-	-	-	NA	NA	3	b
2021	4196	Chiffonnette	Wipe	-/-			-	+d/-	-	No Ct	30.08	-	No Ct	28,62	-	-	-	-	NA	NA	3	b
2021	4197	Chiffonnette	Wipe	-/-			-	-	-	No Ct	30.07	-	No Ct	28,44	-	-	-	-	NA	NA	3	b
2021	4198	Fond de casier	Locker background	-/-			-	-	-	No Ct	30.07	-	No Ct	28,46	-	-	-	-	NA	NA	3	b
2021	4199	Fécès	Faeces	-/-			-	-	-	No Ct	30.00	-	No Ct	28,50	-	-	-	-	NA	NA	3	a
2021	4200	Fécès	Faeces	-/-			-	-	-	No Ct	30.05	-	No Ct	28,35	-	-	-	-	NA	NA	3	a
2021	4201	Fécès	Faeces	-/-			-	-	-	No Ct	29.88	-	No Ct	28,60	-	-	-	-	NA	NA	3	a
2021	4284	Fécès	Faeces	-/-			+m/+	+m	+	20.61	31.04	+	19,46	28,14	+	+	+	+	PA	PA	3	a
2021	4285	Fécès	Faeces	-/+	+p	+p bluish	-	-	+	21.99	30.79	+	20,50	28,05	+	+	+	+	PA	PA	3	a
2021	4286	Eau abreuvoir	Drinking water	+d	+p	+p	+p	+p	+	18.27	31.08	+	17,16	28,40	+	+	+	+	PA	PA	3	b
2021	4287	Eau abreuvoir	Drinking water	+	+p	+p bluish	+p	+p bluish	+	20.06	30.77	+	19,42	27,93	+	+	+	+	PA	PA	3	b
2021	4833	Chiffonnette couvoir	Wipe (hatchery)	+	-	+m	-	+m/+	+	21.36	29.15	+	21,70	27,99	+	+	+	+	PA	PA	3	b
2021	4834	Chiffonnette abreuvoir	Wipe (trough)	+	+M	+m	+1/2	+1/2	+	19.30	29.30	+	18,69	28,13	+	+	+	+	PA	PA	3	b
2021	4835	Chiffonnette paroi	Wipe (wall)	+	+p	+p	+M	+1/2	+	19.84	29.31	+	18,94	27,97	+	+	+	+	PA	PA	3	b
2021	4836	Eau abreuvoir	Drinking water	+	-	+m	+M	+M	+	19.59	29.22	+	19,82	28,15	+	+	+	+	PA	PA	3	b
2021	4837	Eau abreuvoir	Drinking water	+	-	-	-	+m/-	-	32.51/ 32.05/ 32.24	29.61/ 29.44/ 29.51	+/+	32,58	28,44	+	- (5x RVS/ MKTTn/ MSRV)	-	-	PPNA	NA	3	b

Appendix 5 – Relative level of detection study: raw data

Raw poultry meats

Chicken fillet without skin

Salmonella Derby Ad1337

Seeding 48h at 3°C±2°C

Total viable count: 6,3.10⁵ CFU/g

Sample N°	Level	Inoculation level (CFU/sample)	Reference method: ISO 6579-1 ♦					Alternative method: IDEXX Salmonella Species DNA Test Kit										
			RVS broth		MKTn broth		Result	Positive Results/Total	PCR						Confirmatory tests (ISO 6579-1)	Final result		Positive Results/Total All thermocyclers
			XLD	ASAP	XLD	ASAP			Bio-Rad CFX96			BMS Mic qPCR				Bio-Rad CFX96	BMS Mic qPCR	
							Cq (FAM)	Cq (HEX)	Result	Cq (FAM)	Cq (HEX)	Result						
1802	0	0	-	-	-	-	-	0/5	No Ct	30.14	-	No Ct	28,56	-	-	-	-	-
1803			-	-	-	-	-		No Ct	30.09	-	No Ct	28,72	-	-	-	-	-
1804			-	-	-	-	-		No Ct	30.08	-	No Ct	28,43	-	-	-	-	-
1805			-	-	-	-	-		No Ct	30.02	-	No Ct	28,73	-	-	-	-	-
1806			-	-	-	-	-		No Ct	30.19	-	No Ct	28,64	-	-	-	-	-
1927	1	0,5	-	-	-	-	-	7/20	No Ct	30.27	-	No Ct	28,88	-	-	-	-	-
1928			-	-	-	-	-		No Ct	30.34	-	No Ct	28,50	-	-	-	-	-
1929			+m	+1/2	+M	+M	+		36.71	30.02	+	36,09	28,56	+	+	+	+	+
1930			+m/+	+M	+M	+M	+		34.02	30.12	+	32,4	28,48	+	+	+	+	+
1931			+m	+M	+M	+M	+		31.09	30.05	+	31,87	28,82	+	+	+	+	+
1932			-	-	-	-	-		No Ct	30.09	-	No Ct	29,01	-	-	-	-	-
1933			-	-	-	-	-		No Ct	29.92	-	No Ct	28,39	-	-	-	-	-
1934			-	-	-	-	-		No Ct	29.80	-	No Ct	28,71	-	-	-	-	-
1935			-	-	-	-	-		No Ct	29.84	-	No Ct	28,63	-	-	-	-	-
1936			-	-	-	-	-		No Ct	29.89	-	No Ct	28,78	-	-	-	-	-
1937			-	-	-	-	-		No Ct	30.02	-	No Ct	28,63	-	-	-	-	-
1938			-	-	-	-	-		No Ct	30.04	-	No Ct	28,81	-	-	-	-	-
1939			+m	+M	+M	+M	+		32.74	29.96	+	32,3	28,46	+	+	+	+	+
1940			+m/+	+1/2	+M	+M	+		32.01	30.06	+	31,94	28,76	+	+	+	+	+
1941			-	-	-	-	-		No Ct	30.21	-	No Ct	28,66	-	-	-	-	-
1942			+m	+1/2	+M	+M	+		32.14	29.95	+	31,48	28,58	+	+	+	+	+
1943			-	-	-	-	-		No Ct	29.98	-	No Ct	28,77	-	-	-	-	-
1944			+m	+1/2	+M	+M	+		33.10	28.45	+	32,97	28,45	+	+	+	+	+
1945			-	-	-	-	-		No Ct	30.03	-	No Ct	28,69	-	-	-	-	-
1946	-	-	-	-	-	No Ct	29.91	-	No Ct	28,76	-	-	-	-	-			
1947	2	1,7	+m/+	+1/2	+M	+M	+	5/5	31.11	30.16	+	30,92	28,83	+	+	+	+	+
1948			+m/+	+1/2	+M	+M	+		30.96	30.23	+	31,34	28,79	+	+	+	+	+
1949			+m/+	+1/2	+M	+M	+		30.30	30.16	+	30,59	28,46	+	+	+	+	+
1950			+m/+	+1/2	+M	+M	+		32.32	30.21	+	32,37	28,66	+	+	+	+	+
1951			+m/+	+1/2	+M	+M	+		31.61	29.92	+	32,13	28,5	+	+	+	+	+

♦ Analyses performed according to the COFRAC accreditation

ADRIA Développement

Summary Report (Version 0)

RealPCR* Salmonella spp. DNA test

Poultry environmental production

Rinsing water

Salmonella Senftenberg 1

Seeding 48h at 3°C±2°C

Total viable count : 3,7.10⁷ CFU/g

Sample N°	Level	Inoculation level (CFU/sample)	Reference method : ISO 6579-1*					Alternative method : IDEXX Salmonella Species DNA Test Kit											
			RVS broth		MKTTn broth		Result	Positive Results/Total	PCR					Confirmatory tests (ISO 6579-1)	Final result		Positive Results/Total		
			XLD	ASAP	XLD	ASAP			Bio-Rad CFX96		BMS Mic qPCR				Bio-Rad CFX96	BMS Mic qPCR	Bio-Rad CFX96	BMS Mic qPCR	
									Cq (FAM)	Cq (HEX)	Result	Cq (FAM)	Cq (HEX)						Result
1956	0	0	-	-	-	-	-	0/5	No Ct	30.06	-	No Ct	28,39	-	-	-	-	-	-
1957			-	-	-	-	-		No Ct	29.97	-	No Ct	28,69	-	-	-	-	-	-
1958			-	-	-	-	-		No Ct	30.01	-	No Ct	28,89	-	-	-	-	-	-
1959			-	-	-	-	-		No Ct	29.61	-	No Ct	28,54	-	-	-	-	-	-
1960			-	-	-	-	-		No Ct	30.06	-	No Ct	28,60	-	-	-	-	-	-
1991	1	1,0	-	-	-	-	-	10/20	No Ct	29.41	-	No Ct	28,79	-	-	-	-	-	-
1992			-	-	-	-	-		No Ct	29.30	-	No Ct	27,61	-	-	-	-	-	-
1993			+M	+M	+M	+M	+		33.58	29.35	+	38,23	28,25	+	+	+	+	+	+
1994			+1/2	+M	+1/2	+M	+		33.63	29.14	+	38,12	29	+	+	+	+	+	+
1995			-	-	-	-	-		No Ct	29.48	-	No Ct	28,49	-	-	-	-	-	-
1996			-	-	-	-	-		No Ct	29.28	-	No Ct	28,56	-	-	-	-	-	-
1997			+M	+M	+M	+M	+		32.21	29.14	+	38,13	28,55	+	+	+	+	+	+
1998			-	-	-	-	-		No Ct	29.49	-	No Ct	28,76	-	-	-	-	-	-
1999			-	-	+m/-	+m/-	-		No Ct	29.25	-	No Ct	28,66	-	-	-	-	-	-
2000			-	-	-	-	-		No Ct	29.22	-	No Ct	28,66	-	-	-	-	-	-
2001			+1/2	+M	+M	+M	+		31.05	29.22	+	36,14	28,62	+	+	+	+	+	+
2002			+M	+M	+M	+M	+		32.23	29.25	+	37,08	28,64	+	+	+	+	+	+
2003			+M	+M	+M	+M	+		31.85	29.26	+	37	28,22	+	+	+	+	+	+
2004			-	-	-	-	-		No Ct	29.27	-	No Ct	28,56	-	-	-	-	-	-
2005			+M	+M	+1/2	+M	+		34.32	29.39	+	No Ct/ No Ct/ No Ct	28,57/ 28,33/ 28,21	-/-	+	+	-	-	-
2006	+1/2	+M	+1/2	+M	+	33.18	29.29	+	No Ct/ No Ct/ 39,23	28,42/ 28,33/ 28,34	-/-+	+	+	-	-	-			
2007	+M	+M	+1/2	+M	+	32.12	29.16	+	36,85	28,59	+	+	+	+	+	+			
2008	-	-	-	-	-	No Ct	29.17	-	No Ct	28,49	-	-	-	-	-	-			
2009	+M	+M	+1/2	+M	+	32.03	29.28	+	35,41	28,71	+	+	+	+	+	+			
2010	-	-	-	-	-	No Ct	29.08	-	No Ct	28,61	-	-	-	-	-	-			
2011	2	3,8	+1/2	+M	+1/2	+M	+	5/5	32.63	29.13	+	36,83	28,74	+	+	+	+	+	
2012			+1/2	+M	+M	+M	+		31.17	29.22	+	38,20	28,64	+	+	+	+	+	
2013			+M	+M	+M	+M	+		30.84	29.57	+	34,92	28,74	+	+	+	+	+	
2014			+M	+M	+1/2	+M	+		32.60	29.38	+	38,21	28,84	+	+	+	+	+	
2015			+1/2	+M	+1/2	+M	+		31.74	29.23	+	36,43	28,49	+	+	+	+	+	

* Analyses performed according to the COFRAC accreditation

ADRIA Développement

Summary Report (Version 0)

RealPCR* Salmonella spp. DNA test

Poultry primary production samples

Boot socks

Salmonella Enteritidis Ad2970

Seeding 24h at ambient temperature

Total viable count : 1,7.10⁶ CFU/g

Sample N°	Level	Inoculation level (CFU/sample)	Reference method: ISO 6579-1*						Alternative method : IDEXX Salmonella Species DNA Test Kit											
			MSRV			MKTTn broth		Positive Results/Total	PCR after a subculture in MKTTn broth						Confirmatory tests (ISO 6579-1)	Final result		Positive Results/Total All thermocyclers		
			Result	XLD	ASAP	XLD	ASAP		Result	Bio-Rad CFX96			BMS Mic qPCR			Bio-Rad CFX96	BMS Mic qPCR			
										Cq (FAM)	Cq (HEX)	Result	Cq (FAM)	Cq (HEX)					Result	
2268	0	0	-/-			-	-	-	0/5	No Ct	29.65	-	No Ct	28,56	-	-	-	-	0/5	
2269			-/-			-	-	-		No Ct	29.85	-	No Ct	28,51	-	-	-	-		
2270			-/-			-	-	-		No Ct	29.82	-	No Ct	28,31	-	-	-	-		
2271			-/-			-	-	-		No Ct	30.00	-	No Ct	28,26	-	-	-	-		
2272			-/-			-	-	-		No Ct	30.02	-	No Ct	28,40	-	-	-	-		
2321	1	0,7	-/-			+M	+M	+	9/20	17.73	29.27	+	18,55	28,48	+	+	+	+	9/20	
2322			+d	-	-	-	-	-		No Ct	29.92	-	No Ct	28,38	-	-	-	-		-
2323			+	+p	+p	+M	+M	+		17.58	29.52	+	18,78	28,06	+	+	+	+		+
2324			+	+p	+p	+M	+M	+		17.61	29.50	+	18,27	28,07	+	+	+	+		+
2325			-/-			-	-	-		No Ct	29.86	-	No Ct	28,55	-	-	-	-		-
2326			-/-			-	-	-		No Ct	29.77	-	No Ct	28,52	-	-	-	-		-
2327			+	+p	+p	+M	+M	+		18.66	29.33	+	19,35	28,16	+	+	+	+		+
2328			-/-			-	-	-		No Ct	29.92	-	No Ct	28,44	-	-	-	-		-
2329			-/-			-	-	-		No Ct	29.90	-	No Ct	28,40	-	-	-	-		-
2330			-/-			-	-	-		No Ct	29.89	-	No Ct	28,75	-	-	-	-		-
2331			-/-			-	-	-		No Ct	30.08	-	No Ct	28,72	-	-	-	-		-
2332			+	+p	+p	+M	+M	+		18.06	29.59	+	18,36	28,12	+	+	+	+		+
2333			-/-			-	-	-		No Ct	29.96	-	No Ct	28,63	-	-	-	-		-
2334			+	+p	+p	+M	+M	+		17.77	29.57	+	18,58	28,09	+	+	+	+		+
2335			+	+p	+p	+M	+M	+		17.66	29.57	+	18,43	28,12	+	+	+	+		+
2336			-/-			-	-	-		No Ct	29.83	-	39,28/ No Ct/ No Ct	28,54/ 28,25/ 28,34	+/-	-	-	-		-
2337			+	+p	+p	+M	+M	+		17.77	29.47	+	17,97	28,35	+	+	+	+		+
2338	+	+p	+p	+M	+M	+	17.95	29.28	+	18,42	28,82	+	+	+	+	+				
2339	-/-			-	-	-	No Ct	29.55	-	No Ct	28,65	-	-	-	-	-				
2340	-/-			-	-	-	No Ct	30.03	-	No Ct	28,65	-	-	-	-	-				
2593	2	2,9	+	+p	+p	+M	+M	+	5/5	17.54	29.42	+	18,55	28,23	+	+	+	+	5/5	
2594			+	+p	+p	+M	+M	+		17.06	29.55	+	18,56	28,16	+	+	+	+		
2595			+	+p	+p	+M	+M	+		17.65	29.39	+	18,38	28,04	+	+	+	+		
2596			+	+p	+p	+M	+M	+		17.80	29.56	+	17,86	28,35	+	+	+	+		
2597			+	+p	+p	+M	+M	+		17.61	29.63	+	17,81	28,12	+	+	+	+		

* Analyses performed according to the COFRAC accreditation

Appendix 6 – Inclusivity and exclusivity study: raw data

INCLUSIVITY															
Strain		Reference	Origin	Inoculation level	PCR										
					Bio-Rad CFX96			BMS Mic qPCR			Confirmation				
					Cq (FAM)	Cq (HEX)	Result	Cq (FAM)	Cq (HEX)	Result	RVS/ XLD	RVS/ ASAP	MKTTn/ XLD	MKTTn/ ASAP	
1	Salmonella	Abaetetuba	Ad2318	/	25	18.13	29.45	+	18,14	28,16	+	+	+	+	+
2	Salmonella	Aberdeen	CIP 105618	/	24	15.40	29.38	+	15,34	28,33	+	+	+	+	+
3	Salmonella	Abortusequi	Ad2321	/	3	20.14	29.46	+	20,26	28,11	+	H2S-	st	H2S-	pale
4	Salmonella	Abortusovis	Ad2320	Ovine foetus	22	23.13	29.74	+	22,22	28,17	+	H2S-	st	H2S-	st
5	Salmonella	Adelaide	Ad2319	Turkey breeding environment	29	21.18	29.38	+	21,03	28,11	+	+	bluish	+	bluish
6	Salmonella	Agona	A00V038	Feed for pork	27	16.53	29.32	+	15,86	28,29	+	+	+	+	+
7	Salmonella	Anatum	A00E007	Dusts	35	15.51	29.46	+	15,31	28,70	+	+	+	+	+
8	Salmonella	arizonae 51:z4,z23:-	CIP 5523	Turkey meat	25	16.98	29.46	+	16,23	28,34	+	+	pale	+	pale
9	Salmonella	arizonae 48:z4,z23:-	Ad1850	Poultry environmental sample	37	16.52	29.24	+	16,50	28,41	+	+	+	+	+
10	Salmonella	Bardo	Adria 569	Meat for sausage	21	15.72	29.36	+	15,34	28,73	+	+	+	+	+
11	Salmonella	Bareilly	Ad 1687	Chocolate industry	33	17.51	29.23	+	17,16	28,23	+	+	+	+	+
12	Salmonella	Blockley	Ad 923	Poultry environment	49	14.82	29.35	+	14,48	28,92	+	+	+	+	+
13	Salmonella	bongori 66:z35	Ad 599	Environmental sample	12	15.98	29.31	+	15,98	28,45	+	+	white	+	white
14	Salmonella	Bovismorbificans	Adria 6629	Sausage	29	15.43	29.28	+	15,87	28,29	+	+	+	+	+
15	Salmonella	Braenderup	Adria 111	Pork meat	28	15.85	29.53	+	15,68	28,36	+	+	+	+	+
16	Salmonella	Brandenburg	Ad 351	Seafood cocktail	28	16.54	29.25	+	16,39	28,58	+	st	st	+	+
17	Salmonella	Bredeney	Adria 396	Ground beef	20	16.23	29.42	+	15,32	28,37	+	+	+	+	+
18	Salmonella	Caracas	Ad2322	Spice	41	16.40	29.29	+	16,54	28,43	+	+	+	+	+
19	Salmonella	Cerro	Ad 689	Dehydrated poultry proteins	21	15.83	29.28	+	15,52	28,56	+	+	white	+	white
20	Salmonella	Chester	CIP 103543	/	39	16.65	29.16	+	17,01	28,27	+	+	+	+	+
21	Salmonella	Cubana	Ad2323	Dust feed environment	55	17.15	29.30	+	17,08	28,28	+	+	+	+	+
22	Salmonella	Derby	Ad 1093	Fish fillet	41	16.44	29.26	+	15,71	28,76	+	+	+	+	+
23	Salmonella	diarizonae 38:lv:z53	Ad 451	Ewe milk cheese	48	15.57	29.37	+	15,45	28,79	+	+	pale	+	pale
24	Salmonella	diarizonae 61:k:1,5,7	Ad 1300	Raw ewe milk	38	16.36	29.38	+	16,30	28,24	+	+	+	+	+
25	Salmonella	Dublin	Ad 529	Beef meat	42	16.53	29.74	+	17,10	29,36	+	+	white	+	white
26	Salmonella	Emek	Ad 333	/	18	16.08	29.37	+	19,42	28,07	+	+	+	+	+
27	Salmonella	Enteritidis	Ad 477	Hen meat	22	14.46	29.63	+	16,34	28,39	+	+	+	+	+
28	Salmonella	Gallinarum biovar pullorum	Ad 300	Poultry environment	4	24.34	30.06	+	25,85	28,42	+	H2S-	(μ)	st	st
29	Salmonella	Gaminara	Ad2324	Boar meat	24	15.18	29.45	+	16,28	28,40	+	+	+	+	+
30	Salmonella	Give	436	Ground beef	31	14.99	29.42	+	16,62	28,21	+	+	+	+	+
31	Salmonella	Guinea	29	/	4	18.03	29.37	+	19,47	28,02	+	H2S-	pale	H2S-	pale
32	Salmonella	Hadar	24871	Chicken meat	31	13.42	29.41	+	14,73	28,80	+	+	+	+	+
33	Salmonella	Havana	Ad 930	Poultry environment	40	15.21	29.47	+	17,02	28,28	+	+	+	+	+
34	Salmonella	Heidelberg	A00E005	Dusts from dairy industry	31	14.45	29.14	+	16,03	28,37	+	+	+	+	+
35	Salmonella	houtenae 50:g,z51	Ad 596	Dairy product	33	14.64	29.70	+	16,45	28,92	+	+	+	+	+
36	Salmonella	Hvittingfoss	Ad2325	Raw stuff	38	14.23	28.78	+	15,44	28,46	+	+	+	+	+
37	Salmonella	Indiana	Ad 174	White cheese	35	14.50	29.37	+	16,24	28,48	+	+	+	+	+
38	Salmonella	Indica 1,6,14,25:a:e,n,x	Ad 600	Environmental sample	31	15.73	29.25	+	16,61	28,11	+	yellow	pale	yellow	pale
39	Salmonella	Indica 11:b:e,n,x	Ad2337	Chicken breeding environment	25	15.14	29.28	+	17,14	28,18	+	+	pale	+	pale
40	Salmonella	Infantis	F401B	Cheese	20	14.47	29.43	+	15,98	28,47	+	+	+	+	+
41	Salmonella	Javiana	Ad2326	Turkey meat	16	12.75	29.52	+	14,68	28,67	+	+	+	+	+

INCLUSIVITY															
Strain		Reference	Origin	Inoculation level	PCR										
					Bio-Rad CFX96			BMS Mic qPCR			Confirmation				
					Cq (FAM)	Cq (HEX)	Result	Cq (FAM)	Cq (HEX)	Result	RVS/ XLD	RVS/ ASAP	MKTTn/ XLD	MKTTn/ ASAP	
42	<i>Salmonella</i>	Kedougou	Ad 929	Bovine environmental sample	12	16.04	29.31	+	17,50	28,32	+	+	+	+	+
43	<i>Salmonella</i>	Kentucky	Ad1756	Poultry environmental sample	28	15.45	29.27	+	17,23	28,35	+	+	+	+	+
44	<i>Salmonella</i>	Kottbus	Adria 1	Poultry environmental sample	44	15.20	29.37	+	17,33	27,78	+	+	+	+	+
45	<i>Salmonella</i>	Landau	Ad 499	/	26	13.92	30.27	+	14,68	28,77	+	+	+	+	+
46	<i>Salmonella</i>	Lille	Adria 37	Food product	42	16.75	29.70	+	17,71	28,68	+	+	+	+	+
47	<i>Salmonella</i>	Livingstone	Ad 1107	Dusts	29	14.67	29.44	+	16,18	28,53	+	+	+	+	+
48	<i>Salmonella</i>	London	Adria 326	Cooked meat sample	49	15.12	29.49	+	16,54	28,26	+	+	+	+	+
49	<i>Salmonella</i>	Luciana	CIP 105626	/	33	15.16	29.21	+	16,24	28,62	+	H2S-	bluish	H2S-	bluish
50	<i>Salmonella</i>	Manhattan	Adria 900	Dusts from dairy industry	43	14.21	29.29	+	15,55	28,67	+	+	+	+	+
51	<i>Salmonella</i>	Maracaibo	CIP 54143	/	66	17.25	29.22	+	16,91	28,63	+	+	+	+	+
52	<i>Salmonella</i>	Marseille	CIP105627	/	53	16.23	29.24	+	16,30	28,69	+	+	+	+	+
53	<i>Salmonella</i>	Mbandaka	Ad 914	Mayonnaise	52	17.03	29.40	+	16,76	28,14	+	+	+	+	+
54	<i>Salmonella</i>	Meleagridis	505	Raw milk	23	15.19	29.28	+	15,35	29,00	+	+	+	+	+
55	<i>Salmonella</i>	Michigan	Ad2327	Low moisture sausage	51	15.42	29.32	+	16,40	28,51	+	+	+	+	+
56	<i>Salmonella</i>	Mikawasima	Ad1811	Raw ewe milk	46	15.02	29.20	+	15,24	28,34	+	+	+	+	+
57	<i>Salmonella</i>	Minnesota	Ad2328	Feed	89	18.16	29.70	+	17,86	28,95	+	+	+	+	+
58	<i>Salmonella</i>	Missisipi	Ad2329	Parakeet	49	16.09	29.16	+	16,30	28,26	+	+	+	+	+
59	<i>Salmonella</i>	Montevideo	Ad912	Raw milk	41	16.14	29.16	+	16,48	28,31	+	+	+	+	+
60	<i>Salmonella</i>	Muenchen	CIP 106178	/	44	15.97	29.14	+	15,98	28,56	+	+	+	+	+
61	<i>Salmonella</i>	Napoli	Ad 928	Clinical	54	16.86	28.99	+	17,06	28,08	+	+	+	+	+
62	<i>Salmonella</i>	Newport	Adria 586	Sausage	13	17.34	29.08	+	17,76	28,16	+	+	+	+	+
63	<i>Salmonella</i>	Norwich	Ad1172	/	23	15.83	29.16	+	15,77	28,29	+	+	+	+	+
64	<i>Salmonella</i>	Ohio	Ad1482	Raw cow milk	28	17.94	28.68	+	17,42	28,34	+	+	+	+	+
65	<i>Salmonella</i>	Orion	27	/	44	17.81	29.42	+	19,72	28,28	+	+	pale	+	pale
66	<i>Salmonella</i>	Oranienburg	Ad1724	Cereals	50	16.11	29.13	+	15,79	28,91	+	+	+	+	+
67	<i>Salmonella</i>	Ovakam	Ad1647	Compost	15	16.30	29.23	+	16,45	28,15	+	+	+	+	+
68	<i>Salmonella</i>	Panama	Adria 8	Ground beef	61	16.41	29.07	+	16,97	28,27	+	+	+	+	+
69	<i>Salmonella</i>	Paratyphi A	ATCC 9150	/	50	16.77	29.09	+	16,77	28,20	+	+	+	+	+
70	<i>Salmonella</i>	Paratyphi B	Ad 301	Clinical	56	14.87	29.12	+	14,47	28,84	+	+	+	+	+
71	<i>Salmonella</i>	Paratyphi C	ATCC 13428	/	33	14.87	29.00	+	15,09	28,36	+	+	pale	+	pale
72	<i>Salmonella</i>	Pomona	CIP105630	/	49	16.52	29.18	+	16,07	28,38	+	+	+	+	+
73	<i>Salmonella</i>	Poona	Ad2330	Poultry feed	63	16.80	29.50	+	15,83	28,23	+	+	+	+	+
74	<i>Salmonella</i>	Putten	Ad2331	Feed for chicken	84	17.47	29.15	+	17,97	28,08	+	+	+	+	+
75	<i>Salmonella</i>	Regent	Adria 328	Duck	83	16.19	29.10	+	16,11	28,26	+	+	+	+	+
76	<i>Salmonella</i>	Rissen	Adria 39	Food product	24	17.51	29.40	+	16,54	28,47	+	+	+	+	+
77	<i>Salmonella</i>	Rubislaw	Ad2332	Shark cartilage	39	16.57	29.65	+	16,15	28,64	+	+	+	+	+
78	<i>Salmonella</i>	Saintpaul	Adria F31	Pilchard fillets	37	16.15	29.60	+	15,64	28,36	+	+	+	+	+
79	<i>Salmonella</i>	<i>salamae</i> 42b:enz15	Ad 593	Cereals	39	16.62	30.08	+	17,83	28,53	+	+	+	+	+
80	<i>Salmonella</i>	Schwarzengrund	Ad2333	Egg products environment	32	16.40	29.62	+	15,82	28,82	+	+	+	+	+
81	<i>Salmonella</i>	Senftenberg	Ad 355	Seafood cocktail	24	16.24	29.55	+	15,80	28,73	+	+	+	+	+
82	<i>Salmonella</i>	Stanley	Ad 1688	Chocolate industry	31	16.62	29.12	+	16,42	28,23	+	+	+	+	+
83	<i>Salmonella</i>	Stourbridge	Ad2297	Raw milk cheese	14	17.00	29.34	+	16,68	28,16	+	+	+	+	+
84	<i>Salmonella</i>	Strasbourg	CIP105632	/	13	17.45	29.36	+	17,21	28,12	+	+	blue	+	blue

INCLUSIVITY														
Strain		Reference	Origin	Inoculation level	PCR									
					Bio-Rad CFX96			BMS Mic qPCR			Confirmation			
					Cq (FAM)	Cq (HEX)	Result	Cq (FAM)	Cq (HEX)	Result	RVS/XLD	RVS/ASAP	MKTTn/XLD	MKTTn/ASAP
85	<i>Salmonella</i>	Tananarive	CIP54142	/	21	16.01	29.53	+	15,40	28,61	+	+	+	+
86	<i>Salmonella</i>	Tennessee	A00E006	Dusts from dairy industry	24	16.63	29.38	+	16,32	28,22	+	+	+	+
87	<i>Salmonella</i>	Thompson	AER301	Poultry	31	16.03	29.16	+	15,50	28,16	+	+	+	+
88	<i>Salmonella</i>	Typhi	Ad 302	Clinical	12	17.62	29.16	+	17,25	28,21	+	H2S-	+	H2S-
89	<i>Salmonella</i>	Typhimurium	Ad 1070	Pork meat	9	17.12	29.46	+	16,84	28,15	+	+	+	+
90	<i>Salmonella</i>	Typhimurium 1,4 [5], 12:-:-	Ad 1333	Tiramisu	68	17.03	29.56	+	16,48	28,09	+	+	+	+
91	<i>Salmonella</i>	Typhimurium 1,4 [5], 12:-:1,2	Ad 1335	Poultry environmental sample	47	16.36	29.32	+	16,06	28,41	+	+	+	+
92	<i>Salmonella</i>	Typhimurium 1,4 [5], 12:i:-	Ad 1334	Ready to cook pork	32	16.08	28.27	+	15,91	28,33	+	+	+	+
93	<i>Salmonella</i>	Urbana	Ad2334	Shrimps	36	16.43	28.73	+	16,42	28,30	+	+	+	+
94	<i>Salmonella</i>	Veneziana	Adria 233	Food product	21	17.28	29.41	+	16,84	28,31	+	+	+	+
95	<i>Salmonella</i>	Virchow	Adria F276	Curry	26	16.64	29.37	+	16,26	28,34	+	+	+	+
96	<i>Salmonella</i>	Wandsworth	Ad2335	Fillet of mullet	30	15.76	29.49	+	14,45	28,52	+	+	+	+
97	<i>Salmonella</i>	Waycross	CIP105634	/	44	16.59	29.71	+	16,57	28,03	+	+	+	+
98	<i>Salmonella</i>	Wayne	Ad502	/	20	17.68	29.37	+	16,73	28,25	+	H2S-	+	H2S-
99	<i>Salmonella</i>	Weltevreden	Ad2336	Treated water	42	16.58	29.29	+	16,32	28,22		+	+	+
100	<i>Salmonella</i>	Worthington	Adria 3506	Pâté	31	16.36	29.44	+	16,16	28,13		+	+	+

EXCLUSIVITY										
Strain	Reference	Origin	Inoculation level	PCR						
				Bio-Rad CFX96			BMS Mic qPCR			
				Cq (FAM)	Cq (HEX)	Result	Cq (FAM)	Cq (HEX)	Result	
1	<i>Citrobacter braakii</i>	Ad833	Raw beef meat	2,9.10 ⁵	No Ct	29.80	-	No Ct	28,65	-
2	<i>Citrobacter Diversus</i>	adria 140	Raw milk	2,8.10 ⁵	No Ct	29.83	-	No Ct	28,82	-
3	<i>Citrobacter freundii</i>	adria 23	Raw pork sausage	2,6.10 ⁵	No Ct	29.63	-	No Ct	28,75	-
4	<i>Citrobacter freundii</i>	adria 175	Raw duck meat	4,9.10 ⁵	No Ct	30.25	-	No Ct	28,54	-
5	<i>Citrobacter koseri</i>	adria 71	Frozen vegetables	3,9.10 ⁵	No Ct	29.94	-	No Ct	28,62	-
6	<i>Enterobacter agglomerans</i>	adria 11	Cheese	2,5.10 ⁵	No Ct	29.84	-	No Ct	28,58	-
7	<i>Enterobacter amnigenus</i>	A00C068	Raw poultry meat	2,4.10 ⁵	No Ct	29.86	-	No Ct	28,85	-
8	<i>Enterobacter cloacae</i>	adria 10	Raw milk	1,5.10 ⁵	No Ct	29.73	-	No Ct	28,48	-
9	<i>Enterobacter intermedius</i>	adria 60	Bean	3,8.10 ⁴	No Ct	29.84	-	No Ct	28,55	-
10	<i>Enterobacter kobei</i>	Ad 342	Ham	1,6.10 ⁵	No Ct	29.75	-	No Ct	28,61	-
11	<i>Enterobacter sakazakii</i>	adria 95	Fermented milk	2,4.10 ⁵	No Ct	29.81	-	No Ct	28,70	-
12	<i>Erwinia carotovora</i>	CIP 8283	Potatoes	2,2.10 ⁴	No Ct	29.44	-	No Ct	28,85	-
13	<i>Escherichia coli</i>	adria 19	Grated carrots	6,3.10 ⁵	No Ct	29.97	-	No Ct	28,47	-
14	<i>Escherichia hermanii</i>	Ad 461	Dessert	1,8.10 ⁵	No Ct	30.03	-	No Ct	29,01	-
15	<i>Escherichia vulneris</i>	adria 132	Veal liver	9,2.10 ⁴	No Ct	30.07	-	No Ct	28,66	-
16	<i>Hafnia alvei</i>	adria 167	Raw pork sausage	3,7.10 ⁵	No Ct	29.73	-	No Ct	28,72	-
17	<i>Klebsiella oxytoca</i>	57	Food product	2,2.10 ⁵	No Ct	29.69	-	No Ct	28,46	-
18	<i>Klebsiella pneumoniae</i>	47	Raw turkey meat	2,9.10 ⁵	No Ct	29.80	-	No Ct	28,45	-
19	<i>Kluyvera spp</i>	adria 41	Raw milk	3,0.10 ⁵	No Ct	29.70	-	No Ct	28,62	-
20	<i>Morganella morganii</i>	CIP A236	/	4,9.10 ⁵	No Ct	29.98	-	No Ct	28,63	-
21	<i>Pantoea agglomerans</i>	adria 62	Frozen vegetables	1,0.10 ⁵	No Ct	29.66	-	No Ct	28,50	-
22	<i>Proteus mirabilis</i>	Ad639	Mayonnaise	7,5.10 ⁵	No Ct	29.80	-	No Ct	28,56	-
23	<i>Proteus vulgaris</i>	adria 43	Sliced ham	2,4.10 ⁴	No Ct	29.82	-	No Ct	28,86	-
24	<i>Providencia rettgeri</i>	adria 112	White liquid egg	7,1.10 ⁵	No Ct	29.77	-	No Ct	28,53	-
25	<i>Rhanella aquatilis</i>	adria 69	Molluscs	6,4.10 ⁴	No Ct	29.85	-	No Ct	28,65	-
26	<i>Serratia liquefaciens</i>	26	Egg product	5,6.10 ⁴	No Ct	30.11	-	No Ct	28,78	-
27	<i>Serratia proteomaculans</i>	A00C056	Ham	1,4.10 ⁴	No Ct	30.01	-	No Ct	28,48	-
28	<i>Shigella flexneri</i>	CIP 8248	/	2,2.10 ⁵	No Ct	29.24	-	No Ct	28,62	-
29	<i>Shigella sonnei</i>	CIP 8249T (ATCC 29930)	/	3,4.10 ⁵	No Ct	30.18	-	No Ct	28,45	-
30	<i>Yersinia enterocolitica</i>	adria 32	Bacon	1,1.10 ⁵	No Ct	30.03	-	No Ct	28,57	-

Appendix 7 - Results obtained by the collaborative laboratories and the expert laboratory

Laboratory **A**

Thermocycler used : CFX 96 Touch

Aerobic mesophilic flora: 840 CFU/g

N°Sample	ISO 6579-1						RealPCR* <i>Salmonella</i> spp. DNA test					
	RVS		MKTTn		Confirmation	Final result ISO 6579-1	PCR			Confirmation	Final result IDEXX	Agreement
	XLD	Brilliance <i>Salmonella</i>	XLD	Brilliance <i>Salmonella</i>			Cp value FAM	Cp value HEX	Result			
1	-	-	-	-	n.a.	-	-	26,31	-	-	-	NA
5	-	-	-	-	n.a.	-	-	26,90	-	-	-	NA
8	-	-	-	-	n.a.	-	-	26,35	-	-	-	NA
9	-	-	-	-	n.a.	-	-	26,34	-	-	-	NA
15	-	-	-	-	n.a.	-	-	26,24	-	-	-	NA
18	-	-	-	-	n.a.	-	-	26,83	-	-	-	NA
21	-	-	-	-	n.a.	-	-	26,97	-	-	-	NA
23	-	-	-	-	n.a.	-	-	26,33	-	-	-	NA
3	+	+	+	+	pos	+	29,72	26,64	+	+	+	PA
4	+	+	+	+	pos	+	33,08	26,86	+	+	+	PA
7	-	-	-	-	n.a.	-	-	26,35	-	-	-	NA
10	+	+	+	+	pos	+	32,03	26,56	+	+	+	PA
13	-	+	+	+	pos	+	27,64	26,69	+	+	+	PA
14	+	+	+	+	pos	+	28,16	26,48	+	+	+	PA
16	+	+	+	+	pos	+	32,48	26,63	+	+	+	PA
20	-	-	-	-	n.a.	-	-	26,89	-	-	-	NA
2	+	+	+	+	pos	+	25,73	26,24	+	+	+	PA
6	+	+	+	+	pos	+	29,22	26,46	+	+	+	PA
11	+	+	+	+	pos	+	28,35	26,55	+	+	+	PA
12	+	+	+	+	pos	+	25,18	26,59	+	+	+	PA
17	+	+	+	+	pos	+	24,38	26,36	+	+	+	PA
19	+	+	+	+	pos	+	30,00	26,75	+	+	+	PA
22	+	+	+	+	pos	+	29,05	26,75	+	+	+	PA
24	+	+	+	+	pos	+	27,11	26,33	+	+	+	PA

Laboratory **B**

Thermocycler used : BMS Mic qPCR

Aerobic mesophilic flora: 540 CFU/g

N°Sample	ISO 6579-1						RealPCR* <i>Salmonella</i> spp. DNA test					
	RVS		MKTTn		Confirmation	Final result ISO 6579-1	PCR			Confirmation	Final result IDEXX	Agreement
	XLD	<i>Brilliance Salmonella</i>	XLD	<i>Brilliance Salmonella</i>			Cp value FAM	Cp value HEX	Result			
1	-	-	-	-	/	-	-	28,79	-	-	-	NA
5	-	-	-	-	/	-	-	28,69	-	-	-	NA
8	-	-	-	-	/	-	-	28,92	-	-	-	NA
9	-	-	-	-	/	-	-	28,77	-	-	-	NA
15	-	-	-	-	/	-	-	29,08	-	-	-	NA
18	-	-	-	-	/	-	-	28,73	-	-	-	NA
21	-	-	-	-	/	-	-	29,10	-	-	-	NA
23	-	-	-	-	/	-	-	29,37	-	-	-	NA
3	-	-	-	-	/	-	-	29,08	-	-	-	NA
4	+	+	+	+	+	+	25,62	28,81	+	+	+	PA
7	-	-	-	-	/	-	-	28,78	-	-	-	NA
10	-	+	+	+	+	+	33,72	28,79	+	+	+	PA
13	+	+	+	+	+	+	27,47	28,82	+	+	+	PA
14	-	-	-	-	/	-	-	28,65	-	-	-	NA
16	+	+	+	+	+	+	29,41	28,89	+	+	+	PA
20	+	+	+	+	+	+	27,01	29,03	+	+	+	PA
2	+	+	+	+	+	+	25,05	28,62	+	+	+	PA
6	+	+	+	+	+	+	26,80	28,62	+	+	+	PA
11	+	+	+	+	+	+	26,62	28,89	+	+	+	PA
12	+	+	+	+	+	+	25,24	28,82	+	+	+	PA
17	+	+	+	+	+	+	24,68	28,58	+	+	+	PA
19	+	+	+	+	+	+	23,94	28,83	+	+	+	PA
22	+	+	+	+	+	+	27,25	29,03	+	+	+	PA
24	+	+	+	+	+	+	26,13	28,85	+	+	+	PA

Laboratory **C**

Thermocycler used : CFX 96 Touch

Aerobic mesophilic flora: 550000 CFU/g

N° Sample	ISO 6579-1						RealPCR* <i>Salmonella</i> spp. DNA test					
	RVS		MKTTn		Confirmation	Final result ISO 6579-1	PCR			Confirmation	Final result IDEXX	Agreement
	XLD	<i>Brilliance Salmonella</i>	XLD	<i>Brilliance Salmonella</i>			Cp value FAM	Cp value HEX	Result			
1	-	-	-	-	/	-	-	30,46	-	-	-	NA
5	-	-	-	-	/	-	-	30,46	-	-	-	NA
8	-	-	-	-	/	-	-	30,34	-	-	-	NA
9	-	-	-	-	/	-	-	30,67	-	-	-	NA
15	-	-	-	-	/	-	-	30,39	-	-	-	NA
18	-	-	-	-	/	-	-	30,38	-	-	-	NA
21	-	-	-	-	/	-	-	30,11	-	-	-	NA
23	-	-	-	-	/	-	-	30,22	-	-	-	NA
3	-	-	-	-	/	-	-	30,38	-	-	-	NA
4	+	+	+	+	+	+	32,33	30,33	+	+	+	PA
7	+	+	+	+	+	+	31,05	30,45	+	+	+	PA
10	+	+	+	+	+	+	34,88	30,28	+	+	+	PA
13	-	-	-	-	/	-	-	30,19	-	-	-	NA
14	-	-	-	-	/	-	-	30,25	-	-	-	NA
16	+	+	+	+	+	+	29,45	30,12	+	+	+	PA
20	+	+	+	+	+	+	28,89	30,49	+	+	+	PA
2	+	+	+	+	+	+	29,01	30,12	+	+	+	PA
6	+	+	+	+	+	+	29,18	30,31	+	+	+	PA
11	+	+	+	+	+	+	31,66	30,29	+	+	+	PA
12	-	+ (1 CFU)	+	+	+	+	37,28	30,88	+	+	+	PA
17	+	+	+	+	+	+	29,76	30,43	+	+	+	PA
19	+	+	+	+	+	+	27,91	30,20	+	+	+	PA
22	+	+	+	+	+	+	29,37	30,25	+	+	+	PA
24	+	+	+	+	+	+	28,36	30,28	+	+	+	PA

Laboratory **D**Thermocycler used : **Applied 7500 Fast**

Aerobic mesophilic flora: 350 CFU/g

N°Sample	ISO 6579-1						RealPCR* <i>Salmonella</i> spp. DNA test					
	RVS		MKTTn		Confirmation	Final result ISO 6579-1	PCR			Confirmation	Final result IDEXX	Agreement
	XLD	<i>Brilliance Salmonella</i>	XLD	<i>Brilliance Salmonella</i>			Cp value FAM	Cp value HEX	Result			
1	-	-	-	-	-	-	-	24,00	-	-	-	NA
5	+	+	+	+	-	-	36,00	24,00	+	-	-	PPNA
8	-	-	-	-	-	-	-	25,00	-	-	-	NA
9	-	-	-	-	-	-	-	24,00	-	-	-	NA
15	-	-	-	-	-	-	-	25,00	-	-	-	NA
18	-	-	-	-	-	-	-	24,00	-	-	-	NA
21	-	-	-	-	-	-	-	24,00	-	-	-	NA
23	+	+	-	-	-	-	38,00	24,00	+	-	-	PPNA
3	+	+	+/-	+/-	-	-	24,00	24,00	+	-	-	PPNA
4	+	+	-	-	-	-	26,00	24,00	+	-	-	PPNA
7	+	+	+	+	+	+	21,00	24,00	+	+	+	PA
10	+	+	-	-	-	-	26,00	24,00	+	-	-	NA
13	+	+	+	+	+	+	25,00	24,00	+	+	+	PA
14	-	-	+	-	-	-	36,00	24,00	+	-	-	PPNA
16	+	+	+	+	+	+	23,00	24,00	+	+	+	PA
20	-	-	-	-	-	-	26,00	24,00	+	-	-	PPNA
2	+	+	+	+	+	+	20,00	24,00	+	+	+	PA
6	+	+	+	+	+	+	20,00	24,00	+	+	+	PA
11	+	+	+	+	+	+	23,00	24,00	+	+	+	PA
12	+	+	+	+	+	+	20,00	25,00	+	+	+	PA
17	+	+	+	+	+	+	20,00	24,00	+	+	+	PA
19	+	+	+	+	+	+	18,00	25,00	+	+	+	PA
22	+	+	+	+	+	+	22,00	24,00	+	+	+	PA
24	+	-	-	-	-	-	22,00	24,00	+	-	-	PPNA

Laboratory **F**

Thermocycler used : CFX 96 Touch

Aerobic mesophilic flora: 310 CFU/g

Analyses at Day3

N°Sample	ISO 6579-1						RealPCR* <i>Salmonella</i> spp. DNA test					
	RVS		MKTTn		Confirmation	Final result ISO 6579-1	PCR			Confirmation	Final result IDEXX	Agreement
	XLD	<i>Brilliance Salmonella</i>	XLD	<i>Brilliance Salmonella</i>			Cp value FAM	Cp value HEX	Result			
1	-	-	+	+	-	-	-	30,40	-	-	-	NA
5	-	-	-	-	/	-	-	30,40	-	-	-	NA
8	+	-	-	-	-	-	-	29,60	-	-	-	NA
9	+	-	+	+	-	-	-	30,30	-	-	-	NA
15	-	-	-	-	/	-	-	30,40	-	-	-	NA
18	+	-	-	-	-	-	-	31,00	-	-	-	NA
21	-	-	-	-	/	-	-	30,40	-	-	-	NA
23	+	-	-	-	-	-	-	30,50	-	-	-	NA
3	-	-	-	-	/	-	-	30,40	-	-	-	NA
4	-	-	-	-	/	-	-	30,40	-	-	-	NA
7	+	+	+	+	+	+	29,00	30,50	+	+	+	PA
10	+	+	+	+	+	+	28,80	30,30	+	+	+	PA
13	+	+	+	+	+	+	29,50	30,50	+	+	+	PA
14	+	+	+	+	+	+	27,80	30,20	+	+	+	PA
16	-	-	-	-	-	-	-	30,40	-	-	-	NA
20	+	+	+	+	+	+	29,20	30,30	+	+	+	PA
2	+	+	+	+	+	+	22,50	30,10	+	+	+	PA
6	+	+	+	+	+	+	26,70	30,40	+	+	+	PA
11	+	+	+	+	+	+	25,20	30,30	+	+	+	PA
12	+	+	+	+	+	+	27,00	30,50	+	+	+	PA
17	+	+	+	+	+	+	28,40	30,30	+	+	+	PA
19	+	+	+	+	+	+	26,30	30,40	+	+	+	PA
22	+	+	+	+	+	+	27,80	30,30	+	+	+	PA
24	+	+	+	+	+	+	24,50	30,30	+	+	+	PA

Laboratory **G**

Thermocycler used : CFX 96 Touch

Aerobic mesophilic flora: 1100 CFU/g

N°Sample	ISO 6579-1						RealPCR* <i>Salmonella</i> spp. DNA test					
	RVS		MKTTn		Confirmation	Final result ISO 6579-1	PCR			Confirmation	Final result IDEXX	Agreement
	XLD	<i>Brilliance Salmonella</i>	XLD	<i>Brilliance Salmonella</i>			Cp value FAM	Cp value HEX	Result			
1	-	-	+	-	-	-	-	30,12	-	-	-	NA
5	+	-	+	-	-	-	-	30,81	-	-	-	NA
8	+	-	-	-	-	-	-	30,72	-	-	-	NA
9	-	-	+	-	-	-	-	30,54	-	-	-	NA
15	-	-	+	-	-	-	-	30,17	-	-	-	NA
18	-	-	+	-	-	-	-	30,42	-	-	-	NA
21	-	-	+	+	-	-	-	30,17	-	-	-	NA
23	+	-	+	-	-	-	-	30,07	-	-	-	NA
3	-	-	-	-	N/A	-	-	31,11	-	-	-	NA
4	+	-	+	-	-	-	-	30,85	-	-	-	NA
7	-	-	+	+	+	+	40,72/-/40,65	30,52/30,32/30,22	-/-	+	-	ND
10	+	+	+	+	+	+	35,43	31,03	+	+	+	PA
13	-	-	+	+	-	-	-	30,27	-	-	-	NA
14	+	+	+	+	+	+	37,07	31,05	+	+	+	PA
16	+	+	+	+	+	+	32,60	30,41	+	+	+	PA
20	-	-	+	+	-	-	-	30,58	-	-	-	NA
2	+	+	+	+	+	+	33,05	30,58	+	+	+	PA
6	+	+	+	+	+	+	28,37	30,31	+	+	+	PA
11	+	+	+	+	+	+	30,64	30,51	+	+	+	PA
12	+	+	+	+	+	+	31,76	30,25	+	+	+	PA
17	+	+	+	+	+	+	26,47	30,11	+	+	+	PA
19	+	+	+	+	+	+	31,21	30,09	+	+	+	PA
22	+	+	+	+	+	+	31,24	30,01	+	+	+	PA
24	+	+	+	+	+	+	29,55	29,98	+	+	+	PA

Laboratory H

Thermocycler used : CFX 96 Touch

Aerobic mesophilic flora: 140 CFU/g

N°Sample	ISO 6579-1						RealPCR* <i>Salmonella</i> spp. DNA test					
	RVS		MKTTn		Confirmation	Final result ISO 6579-1	PCR			Confirmation	Final result IDEXX	Agreement
	XLD	<i>Brilliance Salmonella</i>	XLD	<i>Brilliance Salmonella</i>			Cp value FAM	Cp value HEX	Result			
1	-	-	+	-	- / -	-	-	30.42	-	-	-	NA
5	-	-	-	-	-	-	-	30.37	-	-	-	NA
8	-	-	+	-	- / -	-	-	30.29	-	-	-	NA
9	-	-	+	-	- / -	-	-	29.99	-	-	-	NA
15	-	-	+	-	- / -	-	-	30.31	-	-	-	NA
18	-	-	+	-	- / -	-	-	30.18	-	-	-	NA
21	-	-	+	-	- / -	-	-	30.42	-	-	-	NA
23	-	-	+	-	- / -	-	-	30.27	-	-	-	NA
3	-	-	-	-	-	-	-	30.33	-	-	-	NA
4	+	+	+	+	+	+	28.73	30.29	+	+	+	PA
7	-	-	-	-	-	-	-	30.74	-	-	-	NA
10	-	-	+	-	- / -	-	-	30.05	-	-	-	NA
13	+	+	+	+	+	+	30.10	30.14	+	+	+	PA
14	+	+	+	+	+	+	32.67	30.25	+	+	+	PA
16	-	-	+	-	- / -	-	-	30.39	-	-	-	NA
20	+	+	+	+	+	+	33.63	30.08	+	+	+	PA
2	+	+	+	+	+	+	27.43	30.18	+	+	+	PA
6	+	+	+	+	+	+	27.17	30.04	+	+	+	PA
11	+	+	+	+	+	+	29.21	30.05	+	+	+	PA
12	+	+	+	+	+	+	29.34	29.99	+	+	+	PA
17	+	+	+	+	+	+	27.99	30.46	+	+	+	PA
19	+	+	+	+	+	+	29.23	30.22	+	+	+	PA
22	+	+	+	+	+	+	30.83	30.26	+	+	+	PA
24	+	+	+	+	+	+	31.36	30.09	+	+	+	PA

Laboratory I

Thermocycler used : CFX 96 Touch

Software version:

Aerobic mesophilic flora: 1200 CFU/g

N° Sample	ISO 6579-1						RealPCR* <i>Salmonella</i> spp. DNA test					
	RVS		MKTTn		Confirmation	Final result ISO 6579-1	PCR			Confirmation	Final result IDEXX	Agreement
	XLD	<i>Brilliance Salmonella</i>	XLD	<i>Brilliance Salmonella</i>			Cp value FAM	Cp value HEX	Result			
1	-	-	-	-		-	-	30,18	-	-	-	NA
5	-	-	-	-	-	-	-	30,33	-	-	-	NA
8	-	-	-	-		-	-	30,63	-	-	-	NA
9	-	-	-	-		-	-	29,93	-	-	-	NA
15	-	-	-	-		-	-	30,15	-	-	-	NA
18	-	-	-	-		-	-	30,08	-	-	-	NA
21	-	-	-	-		-	-	29,44	-	-	-	NA
23	-	-	-	-		-	-	30,58	-	-	-	NA
3	-	-	-	-		-	-	29,42	-	-	-	NA
4	+	+	+	+	+	+	32,01	29,93	+	+	+	PA
7	-	-	-	-		-	-	30,29	-	-	-	NA
10	-	-	-	-		-	-	30,42	-	-	-	NA
13	-	-	-	-		-	-	29,52	-	-	-	NA
14	+	+	+	+	+	+	26,90	29,85	+	+	+	PA
16	+	+	+	+	+	+	31,16	30,08	+	+	+	PA
20	+	+	+	+	+	+	33,69	30,60	+	+	+	PA
2	+	+	+	+	+	+	28,51	30,27	+	+	+	PA
6	+	+	+	+	+	+	27,08	30,21	+	+	+	PA
11	+	+	+	+	+	+	27,43	29,99	+	+	+	PA
12	+	+	+	+	+	+	27,46	29,98	+	+	+	PA
17	+	+	+	+	+	+	29,18	30,08	+	+	+	PA
19	+	+	+	+	+	+	25,54	30,09	+	+	+	PA
22	+	+	+	+	+	+	26,09	30,07	+	+	+	PA
24	+	+	+	+	+	+	26,29	30,60	+	+	+	PA

Laboratory **J**

Thermocycler used : BMS Mic qPCR

Aerobic mesophilic flora: 62 000 000 CFU/g

Analyses at Day 6

N° Sample	ISO 6579-1						RealPCR* <i>Salmonella</i> spp. DNA test					
	RVS		MKTTn		Confirmation	Final result ISO 6579-1	PCR			Confirmation	Final result IDEXX	Agreement
	XLD	<i>Brilliance Salmonella</i>	XLD	<i>Brilliance Salmonella</i>			Cp value FAM	Cp value HEX	Result			
1	-	-	+	-	-	-	-	29,12	-	-	-	NA
5	-	-	-	-	-	-	-	29,07	-	-	-	NA
8	-	-	-	-	-	-	-	29,37	-	-	-	NA
9	-	-	-	-	-	-	-	29,35	-	-	-	NA
15	-	-	-	-	-	-	-	29,09	-	-	-	NA
18	-	-	-	-	-	-	-	29,08	-	-	-	NA
21	-	-	-	-	-	-	-	29,09	-	-	-	NA
23	-	-	-	-	-	-	-	29,15	-	-	-	NA
3	-	-	-	-	-	-	-	29,24	-	-	-	NA
4	-	+	+	+	+	+	33,11	29,42	+	+	+	PA
7	-	-	+	-	-	-	-	29,36	-	-	-	NA
10	-	-	-	-	-	-	-	29,30	-	-	-	NA
13	+	+	+	+	+	+	32,34	29,14	+	+	+	PA
14	-	+	+	+	+	+	38,24	29,15	+	+	+	PA
16	+	+	+	+	+	+	36,35	29,25	+	+	+	PA
20	-	-	-	-	-	-	-	29,09	-	-	-	NA
2	-	+	+	+	+	+	33,20	29,26	+	+	+	PA
6	+	+	+	+	+	+	31,11	29,41	+	+	+	PA
11	+	+	+	+	+	+	32,08	29,38	+	+	+	PA
12	+	+	+	+	+	+	29,56	29,25	+	+	+	PA
17	+	+	+	+	+	+	26,48	29,02	+	+	+	PA
19	+	+	+	+	+	+	30,33	29,31	+	+	+	PA
22	+	+	+	+	+	+	30,00	29,10	+	+	+	PA
24	+	+	+	+	+	+	31,77	29,11	+	+	+	PA

Laboratory **K**

Thermocycler used : CFX 96 Touch

Aerobic mesophilic flora: 2700 CFU/g

N°Sample	ISO 6579-1						RealPCR* <i>Salmonella</i> spp. DNA test					
	RVS		MKTTn		Confirmation	Final result ISO 6579-1	PCR			Confirmation	Final result IDEXX	Agreement
	XLD	<i>Brilliance Salmonella</i>	XLD	<i>Brilliance Salmonella</i>			Cp value FAM	Cp value HEX	Result			
1	-	-	-	-	/	-	-	30,44	-	-	-	NA
5	-	-	-	-	/	-	-	30,20	-	-	-	NA
8	-	-	-	-	/	-	-	30,32	-	-	-	NA
9	-	-	-	-	/	-	-	30,22	-	-	-	NA
15	-	-	-	-	/	-	-	30,00	-	-	-	NA
18	-	-	-	-	/	-	-	30,24	-	-	-	NA
21	-	-	-	-	/	-	-	30,01	-	-	-	NA
23	-	-	-	-	/	-	-	30,01	-	-	-	NA
3	+	+	+	+	+	+	35,58	30,16	+	+	+	PA
4	+	+	+	+	+	+	36,69	29,95	+	+	+	PA
7	-	+	+	+	+	+	36,44	30,11	+	+	+	PA
10	-	-	-	-	/	-	-	30,24	-	-	-	NA
13	-	-	-	-	/	-	-	30,06	-	-	-	NA
14	-	+	-	+	+	+	34,61	30,05	+	+	+	PA
16	+	+	+	+	+	+	32,93	30,10	+	+	+	PA
20	-	-	-	-	/	-	-	30,04	-	-	-	NA
2	+	+	+	+	+	+	32,70	30,08	+	+	+	PA
6	+	+	+	+	+	+	29,08	29,87	+	+	+	PA
11	+	+	+	+	+	+	35,09	30,78	+	+	+	PA
12	+	+	+	+	+	+	31,37	30,18	+	+	+	PA
17	+	+	+	+	+	+	31,68	30,35	+	+	+	PA
19	+	+	+	+	+	+	31,61	30,14	+	+	+	PA
22	+	+	+	+	+	+	31,08	30,09	+	+	+	PA
24	+	+	+	+	+	+	34,56	30,23	+	+	+	PA

Laboratory L

Thermocycler used : BMS Mic qPCR

Aerobic mesophilic flora: 360 CFU/g

N°Sample	ISO 6579-1						RealPCR* <i>Salmonella</i> spp. DNA test					
	RVS		MKTTn		Confirmation	Final result ISO 6579-1	PCR			Confirmation	Final result IDEXX	Agreement
	XLD	<i>Brilliance Salmonella</i>	XLD	<i>Brilliance Salmonella</i>			Cp value FAM	Cp value HEX	Result			
1	-	-	-	-		-	32,07/-/-	29.19/28,99/29,04	+/-/-	-	-	PPNA
5	-	-	-	-		-	-	29.11	-	-	-	NA
8	-	-	-	-		-	-	29.12	-	-	-	NA
9	-	-	-	-		-	-	29.02	-	-	-	NA
15	-	-	-	-		-	-	29.2	-	-	-	NA
18	-	-	-	-		-	-	29.21	-	-	-	NA
21	-	-	-	-		-	-	29.2	-	-	-	NA
23	-	-	-	-		-	-	29.26	-	-	-	NA
3	-	-	-	-		-	-	29.08	-	-	-	NA
4	-	-	-	-		-	-	29.07	-	-	-	NA
7	+	+	+	+	+	+	24.07	29.11	+	+	+	PA
10	+	+	+	+	+	+	24.23	29.16	+	+	+	PA
13	-	-	-	-		-	-	29.11	-	-	-	NA
14	-	-	-	-		-	-	29.13	-	-	-	NA
16	-	-	-	-		-	-	29.19	-	-	-	NA
20	-	-	-	-		-	-	29.13	-	-	-	NA
2	+	+	+	+	+	+	26.97	29.15	+	+	+	PA
6	+	+	+	+	+	+	29.05	29.12	+	+	+	PA
11	+	+	+	+	+	+	25.03	29.19	+	+	+	PA
12	+	+	+	+	+	+	28.73	29.26	+	+	+	PA
17	+	+	+	+	+	+	24.65	29.1	+	+	+	PA
19	+	+	+	+	+	+	26.29	29.24	+	+	+	PA
22	+	+	+	+	+	+	24.21	29.21	+	+	+	PA
24	+	+	+	+	+	+	23.03	29.16	+	+	+	PA

Laboratory **M**

Thermocycler used : BMS Mic qPCR

Aerobic mesophilic flora: Not tested

N° Sample	ISO 6579-1						RealPCR* <i>Salmonella</i> spp. DNA test					
	RVS		MKTTn		Confirmation	Final result ISO 6579-1	PCR			Confirmation	Final result IDEXX	Agreement
	XLD	<i>Brilliance Salmonella</i>	XLD	<i>Brilliance Salmonella</i>			Cp value FAM	Cp value HEX	Result			
1	-	-	-	-	/	-	-	29,09	-	-	-	NA
5	-	+	-	-	-/-/-	-	-	29,09	-	-	-	NA
8	-	-	-	-	/	-	-	30,00	-	-	-	NA
9	-	-	-	-	/	-	-	29,03	-	-	-	NA
15	-	-	-	-	/	-	-	29,11	-	-	-	NA
18	-	-	+	-	-/-/-	-	-	28,87	-	-	-	NA
21	-	-	-	-	/	-	-	29,03	-	-	-	NA
23	-	-	-	-	/	-	-	29,13	-	-	-	NA
3	-	-	+	+	+	+	27,69	29,11	+	+	+	PA
4	-	-	-	-		-	-	29,09	-	-	-	NA
7	-	-	+	+	+	+	28,94	29,20	+	+	+	PA
10	-	+	+	+	+	+	27,88	29,02	+	+	+	PA
13	-	+	+	+	+	+	27,82	28,78	+	+	+	PA
14	-	-	+	+	+	+	33,75	29,08	+	+	+	PA
16	-	-	+	+	+	+	38,06	28,94	+	+	+	PA
20	+	-	+	+	+	+	28,90	28,92	+	+	+	PA
2	-	-	+	+	+	+	29,18	29,11	+	+	+	PA
6	+	-	+	+	+	+	28,78	29,14	+	+	+	PA
11	+	+	+	+	+	+	30,46	29,02	+	+	+	PA
12	-	+	+	+	+	+	24,45	28,73	+	+	+	PA
17	+	+	+	+	+	+	27,12	29,04	+	+	+	PA
19	+	+	+	+	+	+	29,04	29,06	+	+	+	PA
22	+	-	+	+	+	+	29,59	29,02	+	+	+	PA
24	+	+	+	+	+	+	28,34	28,71	+	+	+	PA

Laboratory N (Adria)

Thermocycler used : CFX 96 Touch

Aerobic mesophilic flora: 340 CFU/g

N° Sample	ISO 6579-1♦						RealPCR* <i>Salmonella</i> spp. DNA test					
	RVS		MKTTn		Confirmation	Final result ISO 6579-1	PCR			Confirmation	Final result IDEXX	Agreement
	XLD	<i>Brilliance Salmonella</i>	XLD	<i>Brilliance Salmonella</i>			Cp value FAM	Cp value HEX	Result			
1	-	-	-	-	/	-	-	30,04	-	-	-	NA
5	-	-	-	-	/	-	-	30,29	-	-	-	NA
8	-	-	-	-	/	-	-	30,20	-	-	-	NA
9	-	-	-	-	/	-	-	29,98	-	-	-	NA
15	-	-	-	-	/	-	-	30,23	-	-	-	NA
18	-	-	-	-	/	-	-	30,08	-	-	-	NA
21	-	-	-	-	/	-	-	30,14	-	-	-	NA
23	-	-	-	-	/	-	-	30,16	-	-	-	NA
3	-	-	-	-	/	-	-	30,47	-	-	-	NA
4	-	-	-	-	/	-	-	30,27	-	-	-	NA
7	+	+	+	+	+	+	24,13	30,45	+	+	+	PA
10	+	+	+	+	+	+	29,70	30,45	+	+	+	PA
13	-	-	-	-	/	-	-	30,08	-	-	-	NA
14	-	-	-	-	/	-	-	30,05	-	-	-	NA
16	+	+	+	+	+	+	25,81	30,21	+	+	+	PA
20	+	+	+	+	+	+	27,04	30,19	+	+	+	PA
2	+	+	+	+	+	+	32,11	30,08	+	+	+	PA
6	+	+	+	+	+	+	29,52	30,41	+	+	+	PA
11	+	+	+	+	+	+	25,66	30,16	+	+	+	PA
12	+	+	+	+	+	+	23,77	30,07	+	+	+	PA
17	+	+	+	+	+	+	24,17	30,32	+	+	+	PA
19	+	+	+	+	+	+	26,66	30,18	+	+	+	PA
22	+	+	+	+	+	+	23,54	30,27	+	+	+	PA
24	+	+	+	+	+	+	23,98	30,06	+	+	+	PA

♦ Analyses performed according to the COFRAC accreditation

ADRIA Développement

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January 17, 2023

Summary Report (Version 0)

RealPCR* *Salmonella* spp. DNA test