



NF VALIDATION - Validation of alternative method of analysis
Application to food microbiology

Summary Report

Study conducted according to EN ISO 16140-2 : 2016

« VIDAS® UP *E. coli* O157 (including H7) »

(VIDAS ECPT)

BIO 12/25-05/09

(Ref. 30122)

for the detection of *Escherichia coli* O157

Protocol for raw meat, raw milk and raw milk products, raw
vegetables and environmental samples

Qualitative method

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SUMMARY

Preamble.....	3
1. Introduction	4
2. Method protocols.....	4
2.1. Alternative method.....	4
2.2. Reference method.....	7
2.3. Study design.....	7
3. Initial validation and extension/renewal studies : results	7
3.1. Method comparison study	7
3.1.1. Sensitivity study	7
3.1.2. Relative level of detection	24
3.1.3. Inclusivity / Exclusivity	26
3.1.4. Praticability	27
3.2. Inter-laboratory study	28
3.3.1. Inter-laboratory study organization	28
3.3.2. Results	29
3.3.3. Analys of the Results	32
3.3.4. Interpretation of the results	32
4. Conclusion	36
Appendices.....	37

- Appendix 1 : Flow diagrams of the alternative method
- Appendix 2 : Flow diagrams of the reference methods
- Appendix 3 : Artificial contamination of samples
- Appendix 4 : Sensitivity study : Raw data
- Appendix 5 : Relative level of detection : Raw data
- Appendix 6 : Inclusivity/Exclusivity study : Raw data

Preamble

Validation protocol :

ISO 16140-2 (September 2016): Food chain microbiology. Validation of methods - Part 2: Protocol for the validation of alternative (commercial) methods compared with a reference method.

Supplemented by the "Specific requirements of the Food Microbiology Technical Office" of the NF VALIDATION mark (Revision 6).

Reference method :

ISO 16654 (May 2001) : Microbiology of food and animal feeding stuffs – Horizontal method for the detection of *Escherichia coli* O157

ISO 16654/A1 (March 2017) : Microbiology of food and animal feeding stuffs – Horizontal method for the detection of *Escherichia coli* O157 – Amendment 1 : annex B : result of inter-laboratory studies

Scope :

Raw meat, raw milk and raw milk products, raw vegetables and environmental samples.

Certification organism:

AFNOR Certification (<http://nf-validation.afnor.org/>)

1. Introduction

The VIDAS® UP *Escherichia coli* O157 including H7 (VIDAS® ECPT) method was certified by AFNOR Certification according to the ISO 16140-2 standard under the certification number BIO 12/25–05/09.

The validation stages, the expert laboratory and the standards used during the studies are presented in the table below.

Date	Purpose	Expert Laboratory	Standards
May 2009	<u>Initial validation</u> in beef and veal meats (including seasoned meats)	Institut Pasteur Lille	- ISO 16140 :2003 - ISO 16654 (2001)
December 2009	<u>First extension</u> for other food products and environmental samples		
March 2013	<u>First renewal</u>		
May 2014	<u>Second extension</u> for the addition of a protocol for raw meats of beef and veal	ISHA	- ISO 16140/A1:2011 - ISO 16654 (2001)
March 2018	<u>Second renewal</u> with new classification and new enrichment protocol for raw milk and raw milk products		- ISO 16140-2:2016 - ISO 16654/A1 (2017)
April 2021	<u>Third renewal</u>	INOVALYS	- ISO 16140-2 :2016 - ISO 16645/A1 (2017)

2. Method protocols

2.1. Alternative method

Principle of the method :

The VIDAS® UP *E. coli* O157 including H7 (VIDAS® ECPT) test is a phage ligand assay which detects *Escherichia coli* O157 specific receptors using the ELFA (Enzyme Linked Fluorescent Assay) method on the VIDAS automated system.

Each test is composed of two parts:

- the Solid Phase Receptacle (SPR) serves as the solid phase as well as the pipeting device. The interior of the SPR is coated with recombinant phage tail fiber protein for the capture of *Escherichia coli* O157 including H7,
- the strip which contains all the ready-to-use reagents for the assay: washing buffer, alkaline phosphatase conjugate and substrate.

All the assay steps are performed automatically by the instrument. The reaction medium is cycled in and out of the SPR several times.

Part of the enrichment broth is dispensed into the reagent strip. The *E. coli* O157 including H7 present are captured by the recombinant phage protein coating the interior of the SPR.

Unbound sample components are eliminated during the washing steps. Alkaline phosphatase conjugate is then recycled in and out of the SPR and will bind to any *E. coli* O157 including H7 which are themselves bound to the phage protein on the SPR wall.

A final wash step removes unbound conjugate.

During the final detection step, the substrate (4-Methyl-umbelliferyl phosphate) is cycled in and out of the SPR. The conjugate enzyme catalyzes the hydrolysis of this substrate into a fluorescent product (4-Methyl-umbelliferone). The intensity of the fluorescence is measured at 450 nm.

At the end of the assay, the results are analyzed automatically by the instrument. A test value, which is compared to stored standards (thresholds) and an interpretation (positive, negative) are generated for each sample.

The RFV (Relative Fluorescence Value) is calculated by subtracting the background reading from the final result. The RFV obtained for each sample is interpreted by the VIDAS[®] system as follows:

Test value (TV) = RFV sample / RFV standard.

- if TV < 0.04, the test is negative
- and
- if TV ≥ 0.04, the test is positive

Alternative method protocol :

Six protocols are available depending on the categories and the type of products. These protocols are presented in the table 1 and detailed in [appendix 1](#). The buffered peptone water (BPW) used in all of the enrichments listed in table 1 should be preheated at 41.5 ° C prior to analysis, except for the category raw milk and raw milk products.

After enrichment, the VIDAS[®] ECPT test is performed on an aliquot of the enriched broth heated for 5±1 minutes at 95-100°C.

The VIDAS[®] ECPT positive results are confirmed using the following protocols:

- Using the immuno concentration assay, VIDAS[®] ICE, performed from the non-heated enrichment broth, followed by plating onto CT-SMAC agar and ChromID[®] EHEC agar.
- Direct plating of the non-heated enrichment broth onto CT-SMAC agar and ChromID[®] EHEC agar with Cefixime and Tellurite (CT-EHEC).
- Perform a method validated according to the standard EN ISO 16140-2 and certified NF VALIDATION based on a different principle with a common enrichment step.

Typical colonies are confirmed:

- by the tests described in the reference method (biochemical confirmation and latex tests).
- from the ChromID[®] EHEC plate, using an O157 latex test performed directly from an isolated colony.

- A bioMérieux strip and a latex O157 test can be used to directly test isolated colonies (without purification).

Table 1: protocols of the VIDAS® ECPT method

Category	Type	Protocol	Test portion	Dilution	Broth, incubation time, temperature	Incubation times tested during essays of :		
						2009	2014	2017
Raw meat	Raw beef and veal (t1)	①	25g	1/10	BPW pre-warmed +vancomycin 8mg/L 16 to 24h at 41,5°C±1°C	15h & 24h	16h	16h & 24h
		②	25g	1/10	BPW pre-warmed 7 to 24h at 41,5°C±1°C	6h & 24h	/	7h & 24h
		③	375g	1/4	BPW pre-warmed +vancomycin 8 mg/L 8 to 24h at 41,5°C±1°C	8h & 24h	/	8h & 24h
	Seasonned raw beef and veal (t2)	①	25g	1/10	BPW pre-warmed +vancomycin 8mg/L 16 to 24h at 41,5°C±1°C	15h & 24h	16h	16h & 24h
		②	25g	1/10	BPW pre-warmed 7 to 24h at 41,5°C±1°C	6h & 24h	/	7h & 24h
	Other raw meats (t3)	①	25g	1/10	BPW pre-warmed +vancomycin 8mg/L 16 to 24h at 41,5°C±1°C	15h & 24h	/	/
Raw vegetables	Fruits (t1)	④	25g	1/10	BPW pre-warmed +vancomycin 8 mg/L 8 to 24h at 41,5°C±1°C	8h & 24h	/	8h & 24h
	Green plants (t2)							
	Other plants and mix vegetables (t3)							
Raw milk and raw milk dairy products	Goat and sheep raw milk cheese (t1)	⑤	25g	1/10	BPW +acriflavine 10 mg/L 20 to 26h at 41,5°C±1°C	/	/	20h
	Raw milks and other raw milk products (t2)							
	Cow raw milk cheese (t3)							
Environmental samples	Process waters (t1)	⑥	25 g	1/10	BPW pre-warmed + vancomycin 8 mg/L + cefixime 0.0125 mg/L + cefsulodin 10 mg/L 15 to 24h at 41,5°C±1°C	15h & 24h	/	15h & 24h
	Dust and residues (t2)							
	Surface samples (t3)							

Note : It is possible to store the non-heated enrichment broth for 48h at 5°C ± 3°C (72h for raw milk products) before performing the VIDAS® test or before performing confirmation step.

Restriction :

There is no restriction.

2.2. Reference method

The reference methods used are the ISO 16654 (2001): "Microbiology of food and animal feeding stuffs – Horizontal method for the detection of *Escherichia coli* O157 and the ISO 16654/A1 (2017): "Microbiology of food and animal feeding stuffs – Horizontal method for the detection of *Escherichia coli* O157-Amendment 1 : annex B : result of inter-laboratory studies.

The workflow diagram is set out in [appendix 2](#).

2.3. Study design

The study is an unpaired design as the reference and the alternative methods have different enrichment procedures.

3. Initial validation and extension/renewal studies : results

3.1. Method comparison study

The study was conducted on a variety of samples and strains representative of agri-food products. This is not an exhaustive list of the different matrices included in the scope.

3.1.1. Sensitivity study

The relative sensitivity (SE) is the ability of the alternative method to detect the analyte when it is detected by the reference method.

3.1.1.1. Number and nature of samples

Combining the different studies, 461 samples were analysed, 215 positive samples and 246 negative samples.

The repartition of samples per category and type is presented in table 2.

Table 2 : Number and nature of samples

Category	Type	Study design	Protocol	Positive samples	Negative samples	Total	
Raw Meat products	t1 Raw beef and veal	unpaired	①	22	16	38	
		unpaired	②	24	31	55	
		unpaired	③	30	33	63	
	Total t1				76	80	156
	t2 Seasoned raw beef and veal	unpaired	①	18	19	37	
		unpaired	②	6	0	6	
	Total t2				24	19	43
t3 Other raw meats	unpaired	①	16	8	24		
Total				116	107	223	
Raw vegetables	t1 Fruits	unpaired	④	15	10	25	
	t2 Green plants	unpaired		7	13	20	
	t3 Other plants and mix vegetables	unpaired		10	23	33	
	Total				32	46	78
Raw milk and raw milk dairy products	t1 Goat and sheep raw milk cheese	unpaired	⑤	8	13	21	
	t2 Raw milks and other raw milk products	unpaired		11	11	22	
	t3 Cow raw milk cheese	unpaired		18	36	54	
	Total				37	60	97
Environmental samples	t1 Process waters	unpaired	⑥	8	13	21	
	t2 Dusts and residues	unpaired		10	10	20	
	t3 Surface samples	unpaired		12	10	22	
	Total				30	33	63
TOTAL ALL CATEGORIES				215	246	461	
Total protocol ①				56	43	99	
Total protocol ②				30	31	61	
Total protocol ③				30	33	63	
Total protocol ④				32	46	78	
Total protocol ⑤				37	60	97	
Total protocol ⑥				30	33	63	

3.1.1.2. Artificial contamination of samples

Artificial contaminations were performed using spiking and seeding protocols. No more than six positive results were obtained using the same strain.

267 samples were artificially contaminated, 214 gave a positive result. 1 sample was naturally contaminated.

Considering all the categories of the application scope, 215 samples gave a positive result by at least one of the method and 0.5 % of them were naturally contaminated.

The detail of the artificial contaminations is in [appendix 3](#) and the repartition of the positive samples per contamination level is given in table 3.

Table 3 : Repartition of the positive samples

Naturally contaminated	Artificially contaminated					Total
	Seeding		Spiking			
	≤3	3<x ≤10	≤5	5<x ≤10	>10	
1	86	9	81	33	5	215
0.5%	40.0%	4.2%	37.7%	15.3 %	2.3%	100%

3.1.1.3. Protocols applied during the study

The samples were analyzed by the reference and the alternative method. For the alternative method, the minimum incubation time of the broth was applied for protocols 1 and 5, and the minimum and the maximum time for the other protocols.

All positive and discordant samples were confirmed using the following protocol:

- a)** Using the immuno concentration assay, VIDAS[®] ICE, performed from the non-heated enrichment broth, followed by plating onto CT-SMAC agar and ChromID[®] EHEC agar (“VIDAS[®] ICE + 2 agar media”),
- b)** Direct plating of the non-heated enrichment broth onto CT-SMAC agar and on CT- ChromID[®] EHEC agar plates (“direct plating on 2 agar media”).

Typical colonies were confirmed:

- by the tests described in the reference method (biochemical confirmation and serology)
- from the ChromID[®] EHEC agar, using an O157 latex test performed directly from an isolated colony
- from the CT-SMAC agar, using an O157 latex test and an API strip, performed directly from an isolated colony

A storage of the enrichment broths for up to 48 hours at 5±3°C (72 hours for raw milk products) before performing the VIDAS[®] ECPT test and the confirmation steps was also tested.

3.1.1.4. Results

Raw data are shown in [appendix 4](#).

The results are given in the following tables 4 and 5.

To have the same number of samples and to compare the two times of incubation of the method, the results obtained with the samples, tested only with the minimum incubation time were duplicated and added on the maximum incubation time. This concerns the samples tested with protocole ⑤ and the samples of the category 1-type 1 and 2 tested with protocol ① in 2014.

**Table 4 : Summary of results obtained with reference and alternative methods
with confirmation a)**

(PA : positive agreement, NA : negative agreement, PD : positive deviation, ND : negative deviation, PP : positive presumptive non confirmed)

Incubation	Category	PA	NA	PD	ND	PPNA*	PPND*	TOTAL
Minimum time	Raw Meat products	87	107	14	15	0	4	223
	Raw vegetables	16	48	6	8	2	3	78
	Raw milk and raw milk dairy products	18	60	11	8	2	0	97
	Environmental samples	26	33	1	3	0	0	63
	TOTAL ALL CATEGORIES	147	248	32	34	4	7	461
	Total protocol ① 16h	42	43	8	6	0	0	99
	Total protocol ② 7h	25	31	1	4	0	4	61
	Total protocol ③ 8h	20	33	5	5	0	0	63
	Total protocol ④ 8h	16	48	6	8	2	3	78
	Total protocol ⑤ 20h	18	60	11	8	2	0	97
	Total protocol ⑥ 15h	26	33	1	3	0	0	63
Incubation	Category	PA	NA	PD	ND	PPNA*	PPND*	TOTAL
Maximum time	Raw Meat products	93	106	15	9	0	1	223
	Raw vegetables	20	41	12	4	0	0	78
	Raw milk and raw milk dairy products	18	60	11	8	2	0	97
	Environmental samples	26	33	1	3	0	0	63
	TOTAL ALL CATEGORIES	157	240	40	24	2	1	461
	Total protocol ① 16h	43	43	8	5	0	0	99
	Total protocol ② 24h	28	31	1	1	0	1	61
	Total protocol ③ 24h	22	32	6	3	0	0	63
	Total protocol ④ 24h	20	41	13	4	0	0	78
	Total protocol ⑤ 20h	18	60	11	8	2	0	97
	Total protocol ⑥ 24h	26	33	1	3	0	0	63

* : PPNA are already included in NA and PPND in ND

**Table 5 : Summary of results obtained with reference and alternative methods
with confirmation b)**

(PA : positive agreement, NA : negative agreement, PD : positive deviation, ND : negative deviation, PP : positive presumptive non confirmed)

Incubation	Category	PA	NA	PD	ND	PPNA*	PPND*	TOTAL
Minimum time	Raw Meat products	87	108	13	15	1	4	223
	Raw vegetables	18	46	8	6	0	1	78
	Raw milk and raw milk dairy products	18	60	11	8	2	0	97
	Environmental samples	26	33	1	3	0	0	63
	TOTAL ALL CATEGORIES	149	247	33	32	3	5	461
	Total protocol ① 16h	39	44	7	9	1	3	99
	Total protocol ② 7h	28	31	1	1	0	1	61
	Total protocol ③ 8h	20	33	5	5	0	0	63
	Total protocol ④ 8h	18	46	8	6	0	1	78
	Total protocol ⑤ 20h	18	60	11	8	2	0	97
	Total protocol ⑥ 15h	26	33	1	3	0	0	63
Incubation	Category	PA	NA	PD	ND	PPNA*	PPND*	TOTAL
Maximum time	Raw Meat products	92	106	14	11	1	3	223
	Raw vegetables	20	41	13	4	0	0	78
	Raw milk and raw milk dairy products	18	60	11	8	2	0	97
	Environmental samples	26	33	1	3	0	0	63
	TOTAL ALL CATEGORIES	156	240	39	26	3	3	461
	Total protocol ① 16h	42	43	7	7	1	2	99
	Total protocol ② 24h	28	31	1	1	0	1	61
	Total protocol ③ 24h	22	32	6	3	0	0	63
	Total protocol ④ 24h	20	41	13	4	0	0	78
	Total protocol ⑤ 20h	18	60	11	8	2	0	97
	Total protocol ⑥ 24h	26	33	1	3	0	0	63

* : PPNA are already included in NA and PPND in ND

3.1.1.5. Calculation of the relative trueness (RT), the sensitivity (SE) and the false positive ratio (FPR)

The results are given in Tables 6 and 7.

Table 6 : Calculation of the relative trueness (RT), sensitivity (SE) and false positive ratio (FPR) with confirmation a)

Incubation	Category	Type	Protocol	PA	NA	PD	ND	PPNA	PPND	SE alt %	SE ref %	RT %	FPR %	
Minimum time	Raw Meat products	t1	①	18	16	2	2	0	0	90,9%	100,0%	100,0%	0,0%	
			②	21	31	1	2	0	2	91,7%	100,0%	33,3%	6,5%	
			③	20	33	5	5	0	0	83,3%	100,0%	100,0%	0,0%	
		Total t1			59	80	8	9	0	2	88,2%	100,0%	80,0%	2,5%
		t2	①	11	19	5	2	0	0	88,9%	100,0%	100,0%	0,0%	
			②	4	0	0	2	0	2	66,7%	100,0%	0,0%	/	
		Total t2			15	19	5	4	0	2	83,3%	100,0%	71,4%	10,5%
		t3	①	13	8	1	2	0	0	87,5%	93,8%	87,5%	0,0%	
	Total			87	107	14	15	0	4	87,1%	87,9%	87,0%	3,7%	
	Raw vegetables	t1	④		9	12	3	1	2	0	92,3%	76,9%	84,0%	16,7%
		t2			2	13	0	5	0	3	28,6%	100,0%	75,0%	23,1%
		t3			5	23	3	2	0	0	80,0%	70,0%	84,8%	0,0%
		Total			16	48	6	8	2	3	73,3%	80,0%	82,1%	10,4%
	Raw milk and raw milk dairy products	t1	⑤		2	13	2	4	0	0	50,0%	75,0%	71,4%	0,0%
		t2			8	11	1	2	0	0	81,8%	90,9%	86,4%	0,0%
		t3			8	36	8	2	2	0	88,9%	55,6%	81,5%	5,6%
		Total			18	60	11	8	2	0	78,4%	70,3%	80,4%	3,3%
	Environmental samples	t1	⑥		7	13	1	0	0	0	100,0%	87,5%	95,2%	0,0%
		t2			10	10	0	0	0	0	100,0%	100,0%	100,0%	0,0%
		t3			9	10	0	3	0	0	75,0%	100,0%	86,4%	0,0%
Total				26	33	1	3	0	0	90,0%	96,7%	93,7%	0,0%	
TOTAL ALL CATEGORIES				147	248	32	34	4	7	84,0%	85,0%	85,7%	4,4%	
Total protocol ① 16h				42	43	8	6	0	0	89,3%	85,7%	85,9%	0,0%	
Total protocol ② 7h				25	31	1	4	0	4	86,7%	96,7%	91,8%	12,9%	
Total protocol ③ 8h				20	33	5	5	0	0	83,3%	100,0%	100,0%	0,0%	
Total protocol ④ 8h				16	48	6	8	2	3	73,3%	80,0%	82,1%	10,4%	
Total protocol ⑤ 20h				18	60	11	8	2	0	78,4%	70,3%	80,4%	3,3%	
Total protocol ⑥ 15h				26	33	1	3	0	0	90,0%	96,7%	93,7%	0,0%	
Incubation	Category	Type	Protocol	PA	NA	PD	ND	PPNA	PPND	SE alt %	SE ref %	RT %	FPR %	
Maximum time	Raw Meat products	t1	①	19	16	2	1	0	0	95,5%	100,0%	100,0%	0,0%	
			②	22	31	1	1	0	1	95,8%	100,0%	50,0%	3,2%	
			③	22	32	6	3	0	0	90,3%	100,0%	100,0%	0,0%	
		Total t1			63	79	9	5	0	1	93,5%	100,0%	90,0%	1,3%
		t2	①	11	19	5	2	0	0	88,9%	100,0%	100,0%	0,0%	
			②	6	0	0	0	0	0	100,0%	/	/	/	
		Total t2			17	19	5	2	0	0	91,7%	100,0%	100,0%	0,0%
		t3	①	13	8	1	2	0	0	87,5%	93,8%	87,5%	0,0%	
	Total			93	106	15	9	0	1	92,3%	87,2%	89,2%	0,9%	
	Raw vegetables	t1	④		9	9	6	1	0	0	93,8%	62,5%	72,0%	0,0%
		t2			6	12	1	1	0	0	87,5%	87,5%	90,0%	0,0%
		t3			5	20	6	2	0	0	84,6%	53,8%	75,8%	0,0%
		Total			20	41	13	4	0	0	89,2%	64,9%	78,2%	0,0%
	Raw milk and raw milk dairy products	t1	⑤		2	13	2	4	0	0	50,0%	75,0%	71,4%	0,0%
		t2			8	11	1	2	0	0	81,8%	90,9%	86,4%	0,0%
		t3			8	36	8	2	2	0	88,9%	55,6%	81,5%	5,6%
		Total			18	60	11	8	2	0	78,4%	70,3%	80,4%	3,3%
	Environmental samples	t1	⑥		7	13	1	0	0	0	100,0%	87,5%	95,2%	0,0%
		t2			10	10	0	0	0	0	100,0%	100,0%	100,0%	0,0%
		t3			9	10	0	3	0	0	75,0%	100,0%	86,4%	0,0%
Total				26	33	1	3	0	0	90,0%	96,7%	93,7%	0,0%	
TOTAL ALL CATEGORIES				157	240	40	24	2	1	89,1%	81,9%	86,1%	1,3%	
Total protocol ① 16h				43	43	8	5	0	0	91,1%	85,7%	86,9%	0,0%	
Total protocol ② 24h				28	31	1	1	0	1	96,7%	96,7%	96,7%	3,2%	
Total protocol ③ 24h				22	32	6	3	0	0	90,3%	100,0%	100,0%	0,0%	
Total protocol ④ 24h				20	41	13	4	0	0	89,2%	64,9%	78,2%	0,0%	
Total protocol ⑤ 20h				18	60	11	8	2	0	78,4%	70,3%	80,4%	3,3%	
Total protocol ⑥ 24h				26	33	1	3	0	0	90,0%	96,7%	93,7%	0,0%	

Table 7 : Calculation of the relative trueness (RT), sensitivity (SE) and false positive ratio (FPR) with confirmation b)

Incubation	Category	Type	Protocol	PA	NA	PD	ND	PPNA	PPND	SE alt %	SE ref %	RT %	FPR %	
Minimum time	Raw Meat products	t1	①	17	17	1	3	1	1	85,7%	95,2%	66,7%	11,8%	
			②	22	31	1	1	0	1	95,8%	100,0%	50,0%	3,2%	
			③	20	33	5	5	0	0	83,3%	100,0%	100,0%	0,0%	
		Total t1			59	81	7	9	1	2	88,0%	98,9%	80,0%	3,7%
		t2	①	10	19	5	3	0	1	83,3%	100,0%	83,3%	5,3%	
			②	6	0	0	0	0	0	100,0%	/	/	/	
		Total t2			16	19	5	3	0	1	87,5%	100,0%	83,3%	5,3%
		t3	①	12	8	1	3	0	1	81,3%	93,8%	83,3%	12,5%	
	Total			87	108	13	15	1	4	87,0%	88,7%	87,4%	4,6%	
	Raw vegetables	t1	④		9	10	5	1	0	0	93,3%	66,7%	76,0%	0,0%
		t2		4	13	0	3	0	1	57,1%	100,0%	85,0%	7,7%	
		t3		5	23	3	2	0	0	80,0%	70,0%	84,8%	0,0%	
		Total			18	46	8	6	0	1	81,3%	75,0%	82,1%	2,2%
	Raw milk and raw milk dairy products	t1	⑤		2	13	2	4	0	0	50,0%	75,0%	71,4%	0,0%
		t2		8	11	1	2	0	0	81,8%	90,9%	86,4%	0,0%	
		t3		8	36	8	2	2	0	88,9%	55,6%	81,5%	5,6%	
		Total			18	60	11	8	2	0	78,4%	70,3%	80,4%	3,3%
	Environmental samples	t1	⑥		7	13	1	0	0	0	100,0%	87,5%	95,2%	0,0%
		t2		10	10	0	0	0	0	100,0%	100,0%	100,0%	0,0%	
		t3		9	10	0	3	0	0	75,0%	100,0%	86,4%	0,0%	
Total				26	33	1	3	0	0	90,0%	96,7%	93,7%	0,0%	
TOTAL ALL CATEGORIES				149	247	33	32	3	5	85,0%	84,6%	85,9%	3,2%	
Total protocol ① 16h				39	44	7	9	1	3	83,6%	87,3%	83,8%	9,1%	
Total protocol ② 7h				28	31	1	1	0	1	96,7%	96,7%	96,7%	3,2%	
Total protocol ③ 8h				20	33	5	5	0	0	83,3%	100,0%	100,0%	0,0%	
Total protocol ④ 8h				18	46	8	6	0	1	81,3%	75,0%	82,1%	2,2%	
Total protocol ⑤ 20h				18	60	11	8	2	0	78,4%	70,3%	80,4%	3,3%	
Total protocol ⑥ 15h				26	33	1	3	0	0	90,0%	96,7%	93,7%	0,0%	
Incubation	Category	Type	Protocol	PA	NA	PD	ND	PPNA	PPND	SE alt %	SE ref %	RT %	FPR %	
Maximum time	Raw Meat products	t1	①	19	16	1	2	1	1	90,9%	94,7%	66,7%	12,5%	
			②	22	31	1	1	0	1	95,8%	100,0%	50,0%	3,2%	
			③	22	32	6	3	0	0	90,3%	100,0%	100,0%	0,0%	
		Total t1			63	79	8	6	1	2	92,2%	98,8%	81,8%	3,8%
		t2	①	10	19	5	3	0	1	83,3%	100,0%	83,3%	5,3%	
			②	6	0	0	0	0	0	100,0%	/	/	/	
		Total t2			16	19	5	3	0	1	87,5%	100,0%	83,3%	5,3%
		t3	①	13	8	1	2	0	0	87,5%	93,8%	87,5%	0,0%	
	Total			92	106	14	11	1	3	90,6%	88,0%	88,4%	3,8%	
	Raw vegetables	t1	④		9	9	6	1	0	0	93,8%	62,5%	72,0%	0,0%
		t2		6	12	1	1	0	0	87,5%	87,5%	90,0%	0,0%	
		t3		5	20	6	2	0	0	84,6%	53,8%	75,8%	0,0%	
		Total			20	41	13	4	0	0	89,2%	64,9%	78,2%	0,0%
	Raw milk and raw milk dairy products	t1	⑤		2	13	2	4	0	0	50,0%	75,0%	71,4%	0,0%
		t2		8	11	1	2	0	0	81,8%	90,9%	86,4%	0,0%	
		t3		8	36	8	2	2	0	88,9%	55,6%	81,5%	5,6%	
		Total			18	60	11	8	2	0	78,4%	70,3%	80,4%	3,3%
	Environmental samples	t1	⑥		7	13	1	0	0	0	100,0%	87,5%	95,2%	0,0%
		t2		10	10	0	0	0	0	100,0%	100,0%	100,0%	0,0%	
		t3		9	10	0	3	0	0	75,0%	100,0%	86,4%	0,0%	
Total				26	33	1	3	0	0	90,0%	96,7%	93,7%	0,0%	
TOTAL ALL CATEGORIES				156	240	39	26	3	3	88,2%	82,4%	85,9%	2,5%	
Total protocol ① 16h				42	43	7	7	1	2	87,5%	87,5%	85,9%	7,0%	
Total protocol ② 24h				28	31	1	1	0	1	96,7%	96,7%	96,7%	3,2%	
Total protocol ③ 24h				22	32	6	3	0	0	90,3%	100,0%	100,0%	0,0%	
Total protocol ④ 24h				20	41	13	4	0	0	89,2%	64,9%	78,2%	0,0%	
Total protocol ⑤ 20h				18	60	11	8	2	0	78,4%	70,3%	80,4%	3,3%	
Total protocol ⑥ 24h				26	33	1	3	0	0	90,0%	96,7%	93,7%	0,0%	

A summary of the results is given in Table 8.

Table 8 : Summary of results

	EN ISO 16140-2 Formula	Confirmation a)		Confirmation b)	
		Minimum incubation time	Maximum incubation time	Minimum incubation time	Maximum incubation time
Sensitivity for the alternative method	$SE_{alt} = \frac{(PA + PD)}{(PA + ND + PD)} \times 100 \%$	84.0%	89.1%	85.0%	88.2%
Sensitivity for the reference method	$SE_{ref} = \frac{(PA + ND)}{(PA + ND + PD)} \times 100 \%$	85.0%	81.9%	84.6%	82.4%
Relative trueness (RT)	$RT = \frac{(PA + NA)}{N} \times 100 \%$	85.7%	86.1%	85.9%	85.9%
False positive ratio for the alternative method (FPR)	$FPR = \frac{FP}{NA} \times 100 \%$	4.4%	1.3%	3.2%	2.5%

3.1.1.6. Analysis of discordant results

Positive deviations

A positive result is obtained by the alternative method whereas a negative result is obtained by the reference method.

Negative deviations

A positive result is obtained by the reference method whereas a negative result is obtained by the alternative method.

Discordant results are examined according to the standard ISO 16140-2: 2016.

The number of discordances between the reference method and the alternative method varies according to the implemented protocols and incubation times.

Table 9 presents the summary of the discordant results for all categories and all protocols with the confirmation a.

Table 10 presents the summary of the discordant results for all categories and all protocols with the confirmation b.

The analysis of discordant results according to the EN ISO 16140-2:2016 is presented in Tables 11 (confirmation a) and 12 (confirmation b).

Table 9 : summary of discordant results for all categories and all protocols with confirmation a)

Study	Protocol	Code	Type	Product	Artificial conta.		ISO 16654	VIDAS ECPT							
					Type	Level		Minimum incubation time				Maximum incubation time			
								TV	ICE	Final result	Concordance	TV	ICE	Final result	Concordance
2017	3	VEC 145	1	Rib	se	2.0	-	0.00	-	-	NA	0.81	+	+	PD
2014	1	EC5	1	Sliced raw beef	sp	0,0	-	0,31	+	+	PD	/	/	/	/
2014	1	EC14	1	Veal cutlet	sp	8,0	-	2,28	+	+	PD	/	/	/	/
2009	2	B1	1	Ground beef	sp	2,0	-	0,53	+	+	PD	2,27	+	+	PD
2017	3	VEC 140	1	Turkey scallop	se	0.6	-	0.96	+	+	PD	1.57	+	+	PD
2017	3	VEC 142	1	Rump steak	se	0.6	-	0.17	+	+	PD	1.98	+	+	PD
2017	3	VEC 159	1	Minced meat (20% fat)	se	3.0	-	0.50	+	+	PD	2.00	+	+	PD
2017	3	VEC 160	1	Minced meat (15% fat)	se	2.0	-	0.77	+	+	PD	1.80	+	+	PD
2017	3	VEC 161	1	Minced meat (15% fat)	se	2.0	-	0.14	+	+	PD	1.97	+	+	PD
2014	1	EC31	2	Frozen ground beef 15% fat with onion	sp	1,3	-	2,13	+	+	PD	/	/	/	/
2014	1	EC18	2	Carpaccio parmesan and olives	sp	3,7	-	2,33	+	+	PD	/	/	/	/
2014	1	EC19	2	Frozen stuffed veal	/	/	-	1,88	+	+	PD	/	/	/	/
2017	1	VEC 3	2	Stuffed veal	se	3,0	-	1,77	+	+	PD	1,74	+	+	PD
2017	1	VEC 7	2	Carpaccio parmesan	se	3,0	-	1,84	+	+	PD	1,78	+	+	PD
2009	1	AB8	3	Chicken breast	sp	1,4	-	2,11	+	+	PD	2,04	+	+	PD
2017	4	VEC58	1	Ananas	se	0.6	-	0,00	+	-	NA (FN)	1.09	+	+	PD
2017	4	VEC94	1	Sweet green pepper	se	2.8	-	1.81	-	-	NA(PP)	1.90	+	+	PD
2017	4	VEC96	1	Sweet red pepper	se	2.8	-	0.07	-	-	NA(PP)	1.91	+	+	PD
2017	4	VEC99	1	Cherry tomato	se	3.0	-	1.83	+	+	PD	1.93	+	+	PD
2017	4	VEC100	1	Orange juice	se	3.0	-	1.57	+	+	PD	1.89	+	+	PD
2017	4	VEC148	1	Courgette (frozen)	se	2.4	-	1.77	+	+	PD	1.90	+	+	PD
2017	4	VEC56	2	Lamb's lettuce	se	0.6	-	0.00 [0.58/0.70/0.59/0.04]	+	-	NA (FN)	1,78	+	+	PD
2017	4	VEC104	3	Chicory	se	3.0	-	0,00	-	-	NA	0,49	+	+	PD
2017	4	VEC57	3	Gratted carrot	se	0.6	-	0,00	+	-	NA (FN)	1,91	+	+	PD
2017	4	VEC63	3	Beetroot	se	0.6	-	0,00	-	-	NA	1,85	+	+	PD
2017	4	VEC64	3	Baby carrot	se	0.6	-	0.18	+	+	PD	1,75	+	+	PD
2017	4	VEC71	3	Chicory	se	0.6	-	0.09	+	+	PD	1,80	+	+	PD
2017	4	VEC147	3	Onions (frozen)	se	2.4	-	0.13	+	+	PD	1,88	+	+	PD
2017	5	VEC114	1	Cheese Roquefort (raw milk)	se	4.2	-	1.93	+	+	PD	/	/	/	/
2017	5	VEC127	1	Goat cheese (raw milk)	se	2.8	-	1.85	+	+	PD	/	/	/	/
2017	5	VEC165	2	Raw butter	se	2.6	-	1.72	+	+	PD	/	/	/	/
2017	5	VEC79	3	Cheese Gruyère (raw milk)	se	2.6	-	1.77	+	+	PD	/	/	/	/
2017	5	VEC80	3	Cheese Saint Felicien (raw milk)	se	1.8	-	1.77	+	+	PD	/	/	/	/
2017	5	VEC83	3	Cheese (raw milk)	se	2.4	-	0.16	+	+	PD	/	/	/	/
2017	5	VEC116	3	Cheese tomme (raw milk)	se	4.2	-	0.05	+	+	PD	/	/	/	/

Study	Protocol	Code	Type	Product	Artificial conta.		ISO 16654	VIDAS ECPT							
					Type	Level		Minimum incubation time			Maximum incubation time				
								TV	ICE	Final result	Concordance	TV	ICE	Final result	Concordance
2017	5	VEC123	3	Cheese (raw milk)	se	3.2	-	1.84	+	+	PD	/	/	/	/
2017	5	VEC124	3	Cheese Morbier (raw milk)	se	3.2	-	0.30	+	+	PD	/	/	/	/
2017	5	VEC129	3	Cheese Cœur de bray (raw milk)	se	2.8	-	1.74	+	+	PD	/	/	/	/
2017	5	VEC135	3	Cheese Comté (raw milk)	se	1.8	-	1.97	+	+	PD	/	/	/	/
2017	6	VEC48	1	Process water: vegetables cleaning water	se	1.6	-	1.85	+	+	PD	1,88	+	+	PD
2009	1	AP3	1	Sweetbread	sp	4,1	+	0,00	-	-	ND	1,52	+	+	PA
2014	1	EC28	1	Ground meat, bolognese 20% fat	sp	2,0	+	0,00	-	-	ND	/	/	/	/
2009	2	F6	1	Frozen Ground beef (<15% fat)	sp	3,8	+	0,67	-	-	ND (PP)	1,72	+	+	PA
2009	2	B4	1	Ground beef	sp	8,0	+	0,06	-	-	ND (PP)	0,18	-	-	ND (PP)
2009	3	E3	1	Ground beef (surg <15% fat)	sp	4,9	+	0,00	-	-	ND	0,00	-	-	ND
2017	3	VEC 143	1	Veal scallop	se	2.4	+	0.00	-	-	ND	0.00	-	-	ND
2017	3	VEC 146	1	Osso bucco, veal	se	2.0	+	0.00	-	-	ND	1.87	+	+	PA
2017	3	VEC 162	1	Minced meat (15% fat)	se	1.0	+	0.00	-	-	ND	0.00	-	-	ND
2017	3	VEC 157	1	Minced meat (15% fat)	se	2.6	+	0.02	+	+	ND (FN)	1.98	+	+	PA
2014	1	EC27	2	Ground beef 15% fat (vegetable proteins)	sp	2,7	+	0,00	-	-	ND	/	/	/	/
2017	1	VEC 1	2	Beef tartar + saulce	se	3,0	+	0.01	-	-	ND	0.00	-	-	ND
2009	2	Y5	2	Beef nballs "provençales"	sp	8,2	+	0,41	-	-	ND (PP)	1,54	+	+	PA
2009	2	Y4	2	Ground beef culinary preparation	sp	8,8	+	1,52	-	-	ND (PP)	1,68	+	+	PA
2009	1	AP1	3	Turkey leg	sp	3,6	+	0,00	-	-	ND	0,00	-	-	ND
2017	4	VEC62	1	Melon	se	0.6	+	0.00	-	-	ND	0.02	-	-	ND
2009	4	O2	2	Lettuce	sp	11,9	+	0,97	-	-	ND(PP)	2,47	+	+	PA
2009	4	O6	2	Lamb's lettuce	sp	6,3	+	0,48	-	-	ND(PP)	2,42	+	+	PA
2009	4	O7	2	Lettuce	sp	7,2	+	2,36	-	-	ND(PP)	2,4	+	+	PA
2009	4	X4	2	Broccoli	sp	12	+	0.00	-	-	ND	2,12	+	+	PA
2017	4	VEC106	2	Peas (frozen)	se	2.8	+	0.00	-	-	ND	0,00	-	-	ND
2017	4	VEC73	3	Mushrooms	se	0.6	+	0,00	-	-	ND	0,00	-	-	ND
2017	4	VEC103	3	Mushrooms	se	3.0	+	0,00	-	-	ND	0,00	-	-	ND
2017	5	VEC75	1	Cheese of goat (raw milk)	se	2.2	+	0.00	-	-	ND	/	/	/	/
2017	5	VEC119	1	Cheese Cabécou (raw milk)	se	2.8	+	0.00	-	-	ND	/	/	/	/
2017	5	VEC184	1	Cheese of goat (raw milk)	se	2.1	+	0.02	-	-	ND	/	/	/	/
2017	5	VEC186	1	Cheese of ewe (raw milk)	se	1.8	+	0.00	-	-	ND	/	/	/	/
2017	5	VEC137	2	Raw milk	se	1.8	+	0.00	-	-	ND	/	/	/	/
2017	5	VEC139	2	Raw milk	se	2.6	+	0.00	-	-	ND	/	/	/	/
2017	5	VEC136	3	Cheese (raw milk)	se	1.8	+	0.00	-	-	ND	/	/	/	/
2017	5	VEC164	3	Cheese Neufchatel (raw milk)	se	2.6	+	0.00	-	-	ND	/	/	/	/
2017	6	VEC150	3	Swab: fridge	se	2.2	-	0,00	-	-	ND	0,00	-	-	ND
2017	6	VEC154	3	Swab: worktop, cold preparation	se	2.2	-	0,00	-	-	ND	0,00	-	-	ND
2017	6	VEC155	3	Swab: worktop, hot preparation	se	2.2	-	0,00	-	-	ND	0,00	-	-	ND

Table 10 : summary of discordant results for all categories and all protocols with confirmation b)

Study	Protocol	Code	Type	Product	Artificial conta.		ISO 16654	VIDAS ECPT							
					Type	Level		Minimum incubation time				Maximum incubation time			
								TV	DI	Final result	Concordance	TV	DI	Final result	Concordance
2014	1	EC14	1	Veal cutlet	sp	8,0	-	2,28	+	+	PD	/	/	/	/
2009	2	B1	1	Ground beef	sp	2,0	-	0,53	+	+	PD	2,27	+	+	PD
2017	3	VEC 145	1	Rib	se	2.0	-	0.00	-	-	NA	0.81	+	+	PD
2017	3	VEC 140	1	Turkey scallop	se	0.6	-	0.96	+	+	PD	1.57	+	+	PD
2017	3	VEC 142	1	Rump steak	se	0.6	-	0.17	+	+	PD	1.98	+	+	PD
2017	3	VEC 159	1	Minced meat (20% fat)	se	3.0	-	0.50	+	+	PD	2.00	+	+	PD
2017	3	VEC 160	1	Minced meat (15% fat)	se	2.0	-	0.77	+	+	PD	1.80	+	+	PD
2017	3	VEC 161	1	Minced meat (15% fat)	se	2.0	-	0.14	+	+	PD	1.97	+	+	PD
2014	1	EC31	2	Frozen ground beef 15% fat with onion	sp	1,3	-	2,13	+	+	PD	/	/	/	/
2014	1	EC18	2	Carpaccio parmesan and olives	sp	3,7	-	2,33	+	+	PD	/	/	/	/
2014	1	EC19	2	Frozen stuffed veal	/	/	-	1,88	+	+	PD	/	/	/	/
2017	1	VEC 3	2	Stuffed veal	se	3,0	-	1.77	+	+	PD	1.74	+	+	PD
2017	1	VEC 7	2	Carpaccio parmesan	se	3,0	-	1.84	+	+	PD	1.78	+	+	PD
2009	1	AB8	3	Chicken breast	sp	1,4	-	2,11	+	+	PD	2,04	+	+	PD
2017	4	VEC58	1	Ananas	se	0.6	-	0,00	-	-	NA	1.09	+	+	PD
2017	4	VEC94	1	Sweet green pepper	se	2.8	-	1.81	+	-	PD	1.90	+	+	PD
2017	4	VEC96	1	Sweet red pepper	se	2.8	-	0.07	+	-	PD	1.91	+	+	PD
2017	4	VEC99	1	Cherry tomato	se	3.0	-	1.83	+	+	PD	1.93	+	+	PD
2017	4	VEC100	1	Orange juice	se	3.0	-	1.57	+	+	PD	1.89	+	+	PD
2017	4	VEC148	1	Courgette (frozen)	se	2.4	-	1.77	+	+	PD	1.90	+	+	PD
2017	4	VEC56	2	Lamb's lettuce	se	0.6	-	0.00 [0.58/0.70/0.59/0.04]	+	-	NA (FN)	1,78	+	+	PD
2017	4	VEC104	3	Chicory	se	3.0	-	0,00	-	-	NA	0,49	+	+	PD
2017	4	VEC57	3	Gratted carrot	se	0.6	-	0,00	-	-	NA	1,91	+	+	PD
2017	4	VEC63	3	Beetroot	se	0.6	-	0,00	+	-	NA (FN)	1,85	+	+	PD
2017	4	VEC64	3	Baby carrot	se	0.6	-	0.18	+	+	PD	1,75	+	+	PD
2017	4	VEC71	3	Chicory	se	0.6	-	0.09	+	+	PD	1,80	+	+	PD
2017	4	VEC147	3	Onions (frozen)	se	2.4	-	0.13	+	+	PD	1,88	+	+	PD
2017	5	VEC114	1	Cheese Roquefort (raw milk)	se	4.2	-	1.93	+	+	PD	/	/	/	/
2017	5	VEC127	1	Goat cheese (raw milk)	se	2.8	-	1.85	+	+	PD	/	/	/	/
2017	5	VEC165	2	Raw butter	se	2.6	-	1.72	+	+	PD	/	/	/	/
2017	5	VEC79	3	Cheese Gruyère (raw milk)	se	2.6	-	1.77	+	+	PD	/	/	/	/
2017	5	VEC80	3	Cheese Saint Felicien (raw milk)	se	1.8	-	1.77	+	+	PD	/	/	/	/
2017	5	VEC83	3	Cheese (raw milk)	se	2.4	-	0.16	+	+	PD	/	/	/	/
2017	5	VEC116	3	Cheese tomme (raw milk)	se	4.2	-	0.05	+	+	PD	/	/	/	/
2017	5	VEC123	3	Cheese (raw milk)	se	3.2	-	1.84	+	+	PD	/	/	/	/
2017	5	VEC124	3	Cheese Morbier (raw milk)	se	3.2	-	0.30	+	+	PD	/	/	/	/

Study	Protocol	Code	Type	Product	Artificial conta.		ISO 16654	VIDAS ECPT							
					Type	Level		Minimum incubation time				Maximum incubation time			
								TV	DI	Final result	Concordance	TV	DI	Final result	Concordance
2017	5	VEC129	3	Cheese Cœur de bray (raw milk)	se	2.8	-	1.74	+	+	PD	/	/	/	/
2017	5	VEC135	3	Cheese Comté (raw milk)	se	1.8	-	1.97	+	+	PD	/	/	/	/
2017	6	VEC48	1	Process water: vegetables cleaning water	se	1.6	-	1.85	+	+	PD	1,88	+	+	PD
2009	1	AP3	1	Sweetbread	sp	4,1	+	0,00	-	-	ND	1,52	+	+	PA
2014	1	EC5	1	Sliced raw beef	sp	0,0	-	0,31	-	-	NA (PP)	/	/	/	/
2014	1	EC28	1	Ground meat, bolognese 20% fat	sp	2,0	+	0,00	-	-	ND	/	/	/	/
2014	1	EC15	1	Grilled veal steak	sp	2,3	+	2,19	-	-	ND (PP)	/	/	/	/
2009	2	B4	1	Ground beef	sp	8,0	+	0,06	-	-	ND (PP)	0,18	-	-	ND
2009	3	E3	1	Ground beef (surg <15% fat)	sp	4,9	+	0,00	-	-	ND	0,00	-	-	ND
2017	3	VEC 143	1	Veal scallop	se	2.4	+	0.00	-	-	ND	0.00	-	-	ND
2017	3	VEC 146	1	Osso bucco, veal	se	2.0	+	0.00	-	-	ND	1.87	+	+	PA
2017	3	VEC 162	1	Minced meat (15% fat)	se	1.0	+	0.00	-	-	ND	0.00	-	-	ND
2017	3	VEC 157	1	Minced meat (15% fat)	se	2.6	+	0.02	+	+	ND	1.98	+	+	PA
2014	1	EC27	2	Ground beef 15% fat (vegetable proteins)	sp	2,7	+	0,00	-	-	ND	/	/	/	/
2014	1	EC16	2	Ground beef + onion	sp	2,3	+	2,27	-	-	ND (PP)	/	/	/	/
2017	1	VEC 1	2	Beef tartar + saulce	se	3,0	+	0.01	-	-	ND	0.00	/	/	ND
2009	1	AP1	3	Turkey leg	sp	3,6	+	0,00	-	-	ND	0,00	-	-	ND
2009	1	AP8	3	Pork kidneys	sp	4,8	+	0,00	-	-	ND	0,01	-	-	ND
2009	1	AD8	3	Smoked bacon	sp	6,0	+	0,11	-	-	ND (PP)	0,12	+	+	PA
2017	4	VEC62	1	Melon	se	0.6	+	0.00	-	-	ND	0.02	-	-	ND
2009	4	O6	2	Lamb's lettuce	sp	6,3	+	0,48	-	-	ND(PP)	2,42	+	+	PA
2009	4	X4	2	Broccoli	sp	12	+	0.00	-	-	ND	2,12	+	+	PA
2017	4	VEC106	2	Peas (frozen)	se	2.8	+	0.00	-	-	ND	0,00	-	-	ND
2017	4	VEC73	3	Mushrooms	se	0.6	+	0,00	-	-	ND	0,00	-	-	ND
2017	4	VEC103	3	Mushrooms	se	3.0	+	0,00	-	-	ND	0,00	-	-	ND
2017	5	VEC75	1	Cheese of goat (raw milk)	se	2.2	+	0.00	-	-	ND	/	/	/	/
2017	5	VEC119	1	Cheese Cabécou (raw milk)	se	2.8	+	0.00	-	-	ND	/	/	/	/
2017	5	VEC184	1	Cheese of goat (raw milk)	se	2.1	+	0.02	-	-	ND	/	/	/	/
2017	5	VEC186	1	Cheese of ewe (raw milk)	se	1.8	+	0.00	-	-	ND	/	/	/	/
2017	5	VEC137	2	Raw milk	se	1.8	+	0.00	-	-	ND	/	/	/	/
2017	5	VEC139	2	Raw milk	se	2.6	+	0.00	-	-	ND	/	/	/	/
2017	5	VEC136	3	Cheese (raw milk)	se	1.8	+	0.00	-	-	ND	/	/	/	/
2017	5	VEC164	3	Cheese Neufchatel (raw milk)	se	2.6	+	0.00	-	-	ND	/	/	/	/
2017	6	VEC150	3	Swab: fridge	se	2.2	-	0,00	-	-	ND	0,00	-	-	ND
2017	6	VEC154	3	Swab: worktop, cold preparation	se	2.2	-	0,00	-	-	ND	0,00	-	-	ND
2017	6	VEC155	3	Swab: worktop, hot preparation	se	2.2	-	0,00	-	-	ND	0,00	-	-	ND

Table 11 : Analysis of discordant results : confirmation a)

Incubation	Category	Type	Protocol	N+	PD	ND	ND-PD	AL		
Minimum time	Raw Meat products	t1	Raw beef and veal	①	22	2	2	0		
				②	24	1	2	1		
				③	30	5	5	0		
		Total t1				76	8	9	1	
		t2	Seasoned raw beef and veel	①	18	5	2	-3		
				②	6	0	2	2		
		Total t2				24	5	4	-1	
	t3	Other raw meats	①	16	1	2	1			
	Total				116	14	15	1	5	
	Raw vegetables	t1	Fruits	④	15	3	1	-2		
		t2	Green plants		7	0	5	5		
		t3	Other plants		10	3	2	-1		
		Total				32	6	8	2	3
	Raw milk and raw milk dairy products	t1	Goat and sheep raw milk cheese	⑤	8	2	4	2		
		t2	Raw milks and other raw milk products		11	1	2	1		
		t3	Cow raw milk cheese		18	8	2	-6		
		Total				37	11	8	-3	3
	Environmental samples	t1	Process waters	⑥	8	1	0	-1		
		t2	Dusts and residues		10	0	0	0		
		t3	Surface samples		12	0	3	3		
Total					30	1	3	2	3	
TOTAL ALL CATEGORIES				215	32	34	2	7		
Total protocol ①				56	8	6	-2	3		
Total protocol ②				30	1	4	3	3		
Total protocol ③				30	5	5	0	3		
Total protocol ④				32	6	8	2	3		
Total protocol ⑤				37	11	8	-3	3		
Total protocol ⑥				30	1	3	2	3		
Incubation	Category	Type	Protocol	N+	PD	ND	ND-PD	AL		
Maximum time	Raw Meat products	t1	Raw beef and veal	①	22	2	1	-1		
				②	24	1	1	0		
				③	30	6	3	-3		
		Total t1				76	9	5	-4	
		t2	Seasoned raw beef and veel	①	18	5	2	-3		
				②	6	0	0	0		
		Total t2				24	5	2	-3	
	t3	Other raw meats	①	16	1	2	1			
	Total				116	15	9	-6	5	
	Raw vegetables	t1	Fruits	④	15	6	1	-5		
		t2	Green plants		7	1	1	0		
		t3	Other plants		10	6	2	-4		
		Total				32	12	4	-9	3
	Raw milk and raw milk dairy products	t1	Goat and sheep raw milk cheese	⑤	8	2	4	2		
		t2	Raw milks and other raw milk products		11	1	2	1		
		t3	Cow raw milk cheese		18	8	2	-5		
		Total				36	11	8	-3	3
	Environmental samples	t1	Process waters	⑥	8	1	0	-1		
		t2	Dusts and residues		10	0	0	0		
		t3	Surface samples		12	0	3	3		
Total					30	1	3	2	3	
TOTAL ALL CATEGORIES				214	40	24	-16	7		
Total protocol ①				56	8	5	-3	3		
Total protocol ②				30	1	1	0	3		
Total protocol ③				30	6	3	-3	3		
Total protocol ④				32	13	4	-9	3		
Total protocol ⑤				36	11	8	-3	3		
Total protocol ⑥				30	1	3	2	3		

Table 12 : Analysis of discordant results : confirmation b)

Incubation	Category	Type	Protocol	N+	PD	ND	ND-PD	AL		
Minimum time	Raw Meat products	t1	Raw beef and veal	①	22	1	3	2		
				②	24	1	1	0		
				③	30	5	5	0		
		Total t1				76	7	9	2	
		t2	Seasoned raw beef and veel	①	18	5	3	-2		
				②	6	0	0	0		
		Total t2				24	5	3	-2	
	t3	Other raw meats	①	16	1	3	2			
	Total				116	13	15	2	5	
	Raw vegetables	t1	Fruits	④	15	5	1	-4		
		t2	Green plants		7	0	3	3		
		t3	Other plants		10	3	2	-1		
		Total				32	8	6	-2	3
	Raw milk and raw milk dairy products	t1	Goat and sheep raw milk cheese	⑤	8	2	4	2		
		t2	Raw milks and other raw milk products		11	1	2	1		
		t3	Cow raw milk cheese		18	8	2	-6		
		Total				37	11	8	-3	3
	Environmental samples	t1	Process waters	⑥	8	1	0	-1		
		t2	Dusts and residues		10	0	0	0		
		t3	Surface samples		12	0	3	3		
		Total				30	1	3	2	3
TOTAL ALL CATEGORIES				215	33	32	-1	7		
Total protocol ①				56	7	9	2	3		
Total protocol ②				30	1	1	0	3		
Total protocol ③				30	5	5	0	3		
Total protocol ④				32	8	6	-2	3		
Total protocol ⑤				37	11	8	-3	3		
Total protocol ⑥				30	1	3	2	3		
Incubation	Category	Type	Protocol	N+	PD	ND	ND-PD	AL		
Maximum time	Raw Meat products	t1	Raw beef and veal	①	22	1	2	1		
				②	24	1	1	0		
				③	30	6	3	-3		
		Total t1				76	8	6	-2	
		t2	Seasoned raw beef and veel	①	18	5	3	-2		
				②	6	0	0	0		
		Total t2				24	5	3	-2	
	t3	Other raw meats	①	16	1	2	1			
	Total				116	14	11	-3	5	
	Raw vegetables	t1	Fruits	④	15	6	1	-5		
		t2	Green plants		7	1	1	1		
		t3	Other plants		10	6	2	-4		
		Total				32	13	4	-9	3
	Raw milk and raw milk dairy products	t1	Goat and sheep raw milk cheese	⑤	8	2	4	2		
		t2	Raw milks and other raw milk products		11	1	2	1		
		t3	Cow raw milk cheese		18	8	2	-5		
		Total				36	11	8	-3	3
	Environmental samples	t1	Process waters	⑥	8	1	0	-1		
		t2	Dusts and residues		10	0	0	0		
		t3	Surface samples		12	0	3	3		
		Total				30	1	3	2	3
TOTAL ALL CATEGORIES				214	39	26	-13	7		
Total protocol ①				56	7	7	0	3		
Total protocol ②				30	1	1	0	3		
Total protocol ③				30	6	3	-3	3		
Total protocol ④				32	13	4	-9	3		
Total protocol ⑤				36	11	8	-3	3		
Total protocol ⑥				30	1	3	2	3		

The observed values ND– PD are below or equal to the acceptability limits for each category and for all categories, and for each protocol.

3.1.1.7. Confirmations

During the validations studies of 2009, confirmations performed after 6 or 8 hours of incubation were not always successful and it was recommended to extend incubation of the broth to 20-24 hours.

3 samples in negative agreement were confirmed with the protocol a (VEC56, VEC58 and VEC 57) and 2 with the protocol b (VEC56 and VEC63).

3.1.1.8. Study of storage at 5°C

A stability study of the enriched broths stored at 5±3°C for 48 hours (72 hours for milk dairy product) was performed on all positive and discordant samples. Broths were re-analyzed and confirmed after storage (results in appendix 4).

In 2009, the study of the storage of the broths was applied only after the maximum time of incubation. There was no test with the broths incubated at the minimum time and stored at 5±3°C.

Several changes appeared (table 13). Tables 14 and 15 show the difference between negative deviations and positive deviations and the acceptability limits depending on the confirmation protocols and the incubation times.

Table 13 : Modifications observed after enrichment broth storage for 72h at 5°C

Study	Protocol	Code	Type	Product	VIDAS ECPT				
					Minimum incubation time		Maximum incubation time	Storage of the broth after minimum incubation time	Storage of the broth after maximum incubation time
					Agreement				
DI	ICE	Agreement	Agreement	Agreement					
2014	1	EC5	1	Sliced raw beef	NA(PP)	PD	/	PD	/
2014	1	EC15	1	Grilled veal steak	ND(PP)	PA	/	PA	/
2009	2	F6	1	Frozen Ground beef (<15% fat)	PA	ND(PP)	PA	/	PA
2009	2	B4	1	Ground beef	ND (PP)	ND (PP)	ND	/	PA
2017	3	VEC 146	1	Osso bucco, veal	ND	ND	PA	PA	PA
2017	3	VEC 145	1	Rib	NA	NA	PD	PD	PD
2017	3	VEC 157	1	Minced meat (15% fat)	ND	ND	PA	/	PA
2009	2	Y5	2	Beef nballs "provençales"	PA	ND(PP)	PA	/	PA
2009	2	Y4	2	Ground beef culinary preparation	PA	ND(PP)	PA	/	PA
2014	1	EC16	2	Ground beef + onion	ND(PP)	PA	/	PA	/
2009	1	AD8	3	Smoked bacon	ND(PP)	PA	PA	/	ND
2017	4	VEC58	1	Ananas	NA	NA	PD	PD	PD
2017	4	VEC94	1	Sweet green pepper	PD	NA(PP)	PD	PD	PD
2017	4	VEC96	1	Sweet red pepper	PD	NA(PP)	PD	PD	PD
2017	4	VEC56	2	Lamb's lettuce	NA	NA	PD	PD	PD
2009	4	X4	2	Broccoli	ND	ND	PA	/	PA
2017	4	VEC69	3	White leeks	NA	NA	NA	PD	PD
2017	4	VEC63	3	Beetroot	NA	NA	PD	PD	PD
2017	5	VEC116	3	Cheese tomme (raw milk)	PD	PD	/	NA	/

Table 14 : Analysis of discordant results after 72h of storage at 5±3°C of the enriched broth : confirmation a)

Incubation	Category	Type	Protocol	N+	PD	ND	ND-PD	AL	
Minimum time	Raw Meat products	t1	①	22	2	2	0		
			②	24	1	0	-1		
			③	30	5	4	-1		
		Total t1			76	8	6	-2	
		t2	①	18	5	2	-3		
			②	6	0	0	0		
		Total t2			24	5	2	-3	
		t3	①	16	1	3	2		
	Total			116	14	11	-3	5	
	Raw vegetables	t1	④		15	6	1	-5	
					7	1	4	3	
					10	5	2	-3	
		Total			32	12	7	-5	3
	Raw milk and raw milk dairy products	t1	⑤		8	2	4	2	
					11	1	2	1	
					18	7	2	-5	
		Total			37	10	8	-2	3
Environmental samples	t1	⑥		8	1	0	-1		
				10	0	0	0		
				12	0	3	3		
	Total			30	1	3	2	3	
TOTAL ALL CATEGORIES				215	37	29	-8	7	
Total protocol ①				56	8	7	-1	3	
Total protocol ②				30	1	0	-1	3	
Total protocol ③				30	5	4	-1	3	
Total protocol ④				32	12	7	-5	3	
Total protocol ⑤				37	10	8	-2	3	
Total protocol ⑥				30	1	3	2	3	
Incubation	Category	Type	Protocol	N+	PD	ND	ND-PD	AL	
Maximum time	Raw Meat products	t1	①	22	2	1	-1		
			②	24	1	0	-1		
			③	30	6	3	-3		
		Total t1			76	9	4	-5	
		t2	①	18	5	2	-3		
			②	6	0	0	0		
		Total t2			24	5	2	-3	
		t3	①	16	1	3	2		
	Total			116	15	9	-6	5	
	Raw vegetables	t1	④		15	6	1	-5	
					7	1	1	0	
					10	7	2	-5	
		Total			32	14	4	-10	3
	Raw milk and raw milk dairy products	t1	⑤		8	2	4	2	
					11	1	2	1	
					18	7	2	-5	
		Total			37	10	8	-2	3
Environmental samples	t1	⑥		8	1	0	-1		
				10	0	0	0		
				12	0	3	3		
	Total			30	1	3	2	3	
TOTAL ALL CATEGORIES				215	40	24	-16	7	
Total protocol ①				56	8	6	-2	3	
Total protocol ②				30	1	0	-1	3	
Total protocol ③				30	6	3	-3	3	
Total protocol ④				32	14	4	-10	3	
Total protocol ⑤				37	10	8	-2	3	
Total protocol ⑥				30	1	3	2	3	

Table 15 : Analysis of discordant results after 72h of storage at 5±3°C of the enriched broth : confirmation b)

Incubation	Category	Type	Protocol	N+	PD	ND	ND-PD	AL	
Minimum time	Raw Meat products	t1	①	22	2	2	0		
			②	24	1	0	-1		
			③	30	6	3	-3		
		Total t1			76	9	5	-4	
		t2	①	18	5	2	-3		
			②	6	0	0	0		
		Total t2			24	5	2	-3	
		t3	①	16	1	3	2		
	Total			116	15	10	-5	5	
	Raw vegetables	t1	④		15	6	1	-5	
		t2			7	1	2	1	
		t3			10	5	2	-3	
		Total			32	12	5	-7	3
	Raw milk and raw milk dairy products	t1	⑤		8	2	4	2	
		t2			11	1	2	1	
		t3			18	7	2	-5	
		Total			37	10	8	-2	3
	Environmental samples	t1	⑥		8	1	0	-1	
t2				10	0	0	0		
t3				12	0	3	3		
Total			30	1	3	2	3		
TOTAL ALL CATEGORIES				215	38	26	-12	7	
Total protocol ①				56	8	7	-1	3	
Total protocol ②				30	1	0	-1	3	
Total protocol ③				30	6	3	-3	3	
Total protocol ④				32	12	5	-7	3	
Total protocol ⑤				37	10	8	-2	3	
Total protocol ⑥				30	1	3	2	3	
Incubation	Category	Type	Protocol	N+	PD	ND	ND-PD	AL	
Maximum time	Raw Meat products	t1	①	22	2	1	-1		
			②	24	1	0	-1		
			③	30	6	3	-3		
		Total t1			76	9	4	-5	
		t2	①	18	5	3	-2		
			②	6	0	0	0		
		Total t2			24	5	3	-2	
		t3	①	16	1	2	1		
	Total			116	15	9	-6	5	
	Raw vegetables	t1	④		15	6	1	-5	
		t2			7	1	1	0	
		t3			10	7	2	-5	
		Total			32	14	4	-10	3
	Raw milk and raw milk dairy products	t1	⑤		8	2	4	2	
		t2			11	1	2	1	
		t3			18	7	2	-5	
		Total			37	10	8	-2	3
	Environmental samples	t1	⑥		8	1	0	-1	
t2				10	0	0	0		
t3				12	0	3	3		
Total			30	1	3	2	3		
TOTAL ALL CATEGORIES				215	40	24	-16	7	
Total protocol ①				56	8	6	-2	3	
Total protocol ②				30	1	0	-1	3	
Total protocol ③				30	6	3	-3	3	
Total protocol ④				32	14	4	-10	3	
Total protocol ⑤				37	10	8	-2	3	
Total protocol ⑥				30	1	3	2	3	

The observed values ((ND – PD) are below the acceptability limit for each category and for all categories. The alternative method produces results comparable to the reference method. These results did not modify the conclusion for the conservation of the broths.

3.1.2. Relative level of detection

The relative level of detection (RLOD) is defined as the level of detection at P = 0.50 (LOD50) of the alternative (proprietary) method divided by the level of detection at P = 0.50 (LOD50) of the reference method.

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

$$RLOD = \frac{LOD_{alt}}{LOD_{ref}}$$

3.1.2.1. Experimental design

Different matrix-strain couples were studied in parallel with both methods.

Data from the studies of 2009 (initial validation and first extension) are re-interpreted with the calculations of the new standard ISO 16140-2 : 2016. It concerns the protocols P2, P3, P4 and P6.

For the protocol P1 and P5, analyses and calculations were performed in 2014 and 2017 according to the protocol of the standard ISO 16140-2 : 2016.

- Protocol for protocols P2, P3, P4 and P6

Four or five levels of contamination were tested including the negative control.

Six replicates for each level of contamination were inoculated and analysed with the reference and the alternative methods.

As both methods have no common step, 12 test portions of 25 or 375 g were prepared for each level of contamination and individually inoculated with a calibrated bacterial suspension. Several dilutions of a calibrated and low-concentrated suspension of *E. coli* O157:H7 were used to spike the samples before analysis.

- Protocol for protocols P1 and P5

Three levels of contamination per type were prepared consisting of a negative control level, a low level, and a higher level. Only one strain of the target analyte is used to contaminate the low and high levels.

The negative control level shall not produce positive results. Five replicates are tested for this level.

The low level shall be the theoretical detection level; it has been contaminated at 0.7 - 1 CFU per test portion to obtain fractional recovery results. Twenty replicates are tested for this level.

The higher level shall be just above the theoretical detection level; it has been contaminated at 2 - 3 CFU per test portion. Five replicates are tested for this level.

Food products were contaminated using the seeding protocol. Bulk contaminations were performed on matrices for the different levels of contamination, then the matrices were stored at 5±3°C for two days before analysis. Samples were then analyzed by the reference and alternative methods. For the alternative method, only the minimal incubation time of the broth of the alternative method was tested,.

Simultaneously, a total viable count was performed on a portion of non-contaminated matrix to estimate the concentration of mesophilic aerobic flora. A detection of *E. coli* O157:H7 using the reference method was also performed to check the absence of the target analyte in the matrix.

Table 12 details the couples matrix-strain tested.

Table 12 : couples matrix-strain used for the determination of the RLOD of the method

Category	Protocol	Matrix	Strain	Code	Strain origin
Raw meat products	P1	Ground beef 25 g	<i>E. coli</i> O157:H7	ESC 1.109	Raw beef
	P2	Ground beef 25 g	<i>E. coli</i> O157:H7	ATCC 43895	hamburger
	P3	Ground beef 375 g			
Raw vegetables	P4	Spinach	<i>E. coli</i> O157:H7	EC44	/
Raw milk and raw milk dairy products	P5	Raw milk	<i>E. coli</i> O157:H7	ESC.1.110	Beef
Environmental samples	P6	Process water	<i>E. coli</i> O157:H7	EC55	Environment

3.1.2.2. Results and calculation of the RLODs

Raw results are shown in appendix 6.

RLOD calculations were performed according to the standard ISO 16140-2: 2016 using the Excel spreadsheet available for download at <http://standards.iso.org/iso/16140>. Values of the RLODs are presented in table 13.

Table 13 : RLOD values for the six categories

(RLOD: the estimated relative level of detection value, RLODU: the upper limit of the 95% confidence interval for RLOD, RLODL: the lower limit of the 95% confidence interval for RLOD, $b=\ln(\text{RLOD})$: logarithm of the RLOD value, $sd(b)$: standard deviation of b , z-Test statistic: absolute value of the test statistic of the z-Test with the null hypothesis $H_0: b=0$, p-value: p-value of the z-Test)

Name	Protocol	RLOD	RLODL	RLODU	$b=\ln(\text{RLOD})$	$sd(b)$	z-Test statistic	p-value	Acceptability limit
25g ground beef	P1 16h	0,868	0,355	2,123	-0,142	0,447	0,316	1,248	2.5
25g ground beef	P2 7 h	0,876	0,257	2,986	-0,132	0,613	0,216	1,171	
	P2 24 h	0,876	0,257	2,986	-0,132	0,613	0,216	1,171	
375g ground beef	P3 8 h	1,195	0,418	3,413	0,178	0,525	0,339	0,735	
	P3 24 h	1,000	0,406	2,463	0,000	0,451	0,000	1,000	
Spinach	P4 8 h	1,591	0,507	4,989	0,464	0,572	0,812	0,417	
	P4 24 h	1,591	0,507	4,989	0,464	0,572	0,812	0,417	
Raw milk	P5 20 h	0,737	0,281	1,930	-0,305	0,481	0,634	1,474	
Process water	P6 14 h	1,239	0,474	3,238	0,214	0,480	0,446	0,656	
	P6 24 h	1,239	0,474	3,238	0,214	0,480	0,446	0,656	
Combined		1,109	0,827	1,488	0,104	0,147	0,705	0,481	

The RLODs values are below the acceptability limit set at 2.5, meaning that alternative and reference methods show similar LODs values for the detection of Escherichia coli O157 in the tested categories.

3.1.2.3. Calculation of the LOD_{50%}

The LOD_{50%} calculations according to the Wilrich & Wilrich POD-LOD calculation program – version 9, 2017-09-23 test are given in table 13.

Table 13 : LOD₅₀ results

Category	Protocol	Matrix	Strain	Level of detection at 50% (CFU/sample size) according to Wilrich et Wilrich	
				Reference method	Alternative method
Raw meat products	P1 16h	Ground beef 25 g	<i>E. coli</i> O157:H7	0,90 [0,53-1,74]	0,85 [0,47-1,52]
	P2 7h	Ground beef 25 g		0,37 [0,19-0,71]	0,35 [0,18-0,66]
	P2 24h	Ground beef 25 g		0,37 [0,19-0,71]	0,35 [0,18-0,66]
	P3 8h	Ground beef 375 g		0,47 [0,27-0,82]	0,54 [0,31-0,94]
	P3 24h			0,47 [0,27-0,82]	0,47 [0,27-0,82]
Raw vegetables	P4 8h	Spinach		0,70 [0,38-1,29]	0,97 [0,52-1,80]
	P4 24h			0,70 [0,38-1,29]	0,97 [0,52-1,80]
Raw milk and raw milk dairy products	P5 20h	Raw milk		0,78 [0,44-1,37]	0,62 [0,37-1,06]
Environmental samples	P6 15h	Process water		0,69 [0,41-1,17]	0,78 [0,46-1,34]
	P6 24h			0,69 [0,41-1,17]	0,78 [0,46-1,34]
Combined results				0,58 [0,35-1,11]	0,57 [0,37-1,19]

3.1.3. Inclusivity / Exclusivity

Inclusivity is the capacity of the alternative method to detect the target analyte from a wide range of strains. Exclusivity is the absence of interferences by an appropriate range of untargeted strains from the alternative method.

3.1.3.1. Tests protocols

- Protocol for inclusivity : two protocols were tested

- Protocol specific for raw beef and raw veal

For each strain of *E. coli* O157:H7, a culture in nutritive broth was performed. Then a buffered peptone water was inoculated with about 10 *E. coli* O157:H7 per 225 ml and incubated at 41.5°C for 6 hours before VIDAS ECPT testing.

- Protocol specific for environmental samples

For each strain of *E. coli* O157:H7, a culture in nutritive broth was realized. Then a buffered peptone water (BPW) supplemented with vancomycin (8 mg/l), cefixime (0,0125 mg/l) and cefsulodine (10 mg/l) was inoculated with about 10 *E. coli* O157:H7 per 225 ml and incubated at 41.5°C for 15 hours before VIDAS ECPT testing.

- Protocol for exclusivity

The different negative strains were cultured and diluted in a nutrient broth to obtain a level of about 10^5 cells per 225 ml. After incubation for 20-26 hours at 41.5°C, an aliquot of the BPW was heated for 5 ± 1 minutes at 95-100°C before VIDAS ECPT testing.

3.1.3.2. Results

The raw data are shown in [appendix 7](#).

- Inclusivity

The 56 *E. coli* O157 strains (including 50 *E. coli* O157:H7 strains, 1 *E. coli* O157:H4 strain and 5 *E. coli* O157 non H7 strains) were all detected with the VIDAS ECPT assay, whatever the enrichment protocol used.

- Exclusivity

The study of 50 strains not belonging to the serogroup *E. coli* O157 showed a cross-reaction with 3 *Salmonella* strains from the N group (*Salmonella* Urbana, *Salmonella* Soeranga and *Salmonella* Hilversum). These strains were not characteristic on the selective confirmation media (CT-SMAC agar and ChromID EHEC).

3.1.4. Practicability

The practicability of the alternative method was described according to the criteria defined by the Technical Committee.

1. Storage conditions, shelf-life and modalities of utilisation after first use

The storage temperature of the kit is 2°C to 8°C.

The kit expiration date is shown on the box label and on the different components.

The kit components must be stored at 2°C - 8°C. If stored according to the recommended conditions (pouch correctly resealed with dessiccant after use...), all components are stable until the expiration date indicated on the label.

2. Time-to-result

Negative results are obtained in one day.

Positive results are obtained in two to three days.

3. Common step with the reference method

The alternative method has no common step with the reference method.

3.2. Inter-laboratory study

The purpose of the interlaboratory studies is to determine the difference in sensitivity between the reference method and the alternative method when tests are performed by different collaborators using identical samples (reproducibility conditions).

3.3.1. Inter-laboratory study organization

3.3.1.1. Collaborators

The interlaboratory study was realized by the expert laboratory and seventeen participating laboratories.

Each laboratory received the instructions relative to the organization of the study a week before its beginning.

The interlaboratory study was performed with the protocol P2 of the alternative method.

3.3.1.2. Matrix and strain of *E.coli* O157:H7

A ground beef was used as test matrix for the study. It was contaminated by a strain of *E. coli* O157:H7.

The absence of *E. coli* O157:H7 in the matrix before contamination was checked using the reference method.

3.3.1.3. Preparation and contamination of the sample

The matrix was inoculated with the target strain suspension to obtain 3 contamination levels:

- L0 : 0 cell in 25 g,
- L1 : 3 cells in 25 g,
- L2 : 30 cells in 25 g.

Twenty-five grams of matrix were distributed in sterile bags. Each bag was individually contaminated and homogenized. Eight samples per level, per collaborator and per method were prepared. Each collaborator received 48 samples to analyze, one sample to perform the total viable count (TVC) and one water sample containing a temperature probe.

The results of the target levels and the real levels of contamination are presented in table 17.

Table 17 : target level, real level and endogenous flora of the matrix

Matrix	Target level (cells / 25 g)	Real level (cells / 25 g)
Ground beef	0	0
	3	4.3
	30	46

3.3.1.4. Labelling of the samples

Labelling of the bags was realized as follows:

- a code to identify the laboratory: from A to Q.
- and a code to identify each sample, only known by the expert laboratory.

The samples and the temperature control vials (water sample with a temperature probe) were stored at 5±3°C before shipping.

Table 17 : Sample code by contamination level

Contamination level	Sample code
L0	1-2-3-8-9-10-20-21-25-26-27-32-33-34-44-45
L1	4-5-11-12-13-17-18-19-28-29-35-36-37-41-42-43
L2	6-7-14-15-16-22-23-24-30-31-38-39-40-46-47-48

3.3.1.5. Shipping and receipt of the samples, analyses by the collaborators

The samples were shipped in a coolbox.

The control temperature was recorded upon receipt of the package and the temperature probe sent to the expert laboratory.

The samples had to be analyzed one or two days after the shipping.

The expert laboratory concurrently analyzed a set of samples under the same conditions with both methods.

3.3.2. Results

3.3.2.1. Shipping Temperature and state of the samples at receipt

The temperature readings upon reception and the state of the samples are shown in table 18.

Table 18 : temperature and state of the samples at reception

Laboratory	T°C laboratory	T°C probe	Comments
A	4.8°C	4.1°C	
B	2.0°C	5.1°C	
C	4.2°C	4.1°C	
D	9.3°C	7.3°C	
E	3.9°C	4.2°C	
F	7.7°C	6.2°C	
G	3.5°C	3.1°C	
H	4.9°C	3.7°C	
I	18.9°C	17.3°C	Reception at D5
J	/	4.8°C	Reception at D2
K	/	7,1°C	
L	6.6°C	4.7°C	
M	5.0°C	5.5°C	
N	7.6°C	3.0°C	
O	9.1°C	3,9°C	
P	5.1°C	9.1°C	
Q	/	/	Analyses not realized

Among the 17 laboratories, 14 laboratories received samples the day after shipment. Laboratory P received samples at D1, but registered shipment temperatures were over 8°C. Its results were not considered.

Laboratory J received samples at D2, but the delivery temperatures were acceptable, so, its results were exploitable. And 2 laboratories (I and Q) did not realized the analysis due to poor reception conditions.

Finally, 14 laboratories performed the analysis.

3.3.2.2. Expert laboratory results

The results obtained by the expert laboratory are summarized in Table 19.

Raw results are presented in appendix 9.

Table 19 : positive results obtained by expert laboratory by both methods

Contamination level	Alternative method	Reference method
L0	0/8	0/8
L1	8/8	8/8
L2	8/8	8/8

3.3.2.3. Collaborators results

Raw results are presented in appendix 10.

Mesophilic aerobic flora

For all laboratories, total viable counts at 30°C vary between 3.4×10^4 CFU/g and $3,1 \times 10^8$ CFU/g.

Results of the reference method

Positive results of the collaborators for the reference method are presented in Table 20.

Table 20 : positive results of the reference method for all laboratories

Reference method			
Laboratory	Contamination level		
	L0	L1	L2
A	0/8	7/8	8/8
B	0/8	8/8	8/8
C	0/8	8/8	8/8
D	8/8	8/8	8/8
E	0/8	8/8	8/8
F	0/8	8/8	8/8
G	0/8	8/8	8/8
H	0/8	8/8	8/8
J	0/8	8/8	8/8
K	0/8	8/8	8/8
L	1/8	8/8	8/8
M	0/8	8/8	8/8
N	0/8	8/8	8/8
O	0/8	8/8	8/8

Results of the alternative method

Positive results of the collaborators for the alternative method are presented in Table 21.

Table 21 : positive results of the alternative method for all laboratories

Alternative method						
Laboratory	Contamination level					
	L0		L1		L2	
	Before confirmation	After confirmation	Before confirmation	After confirmation	Before confirmation	After confirmation
A	0/8	0/8	8/8	8/8	8/8	8/8
B	0/8	0/8	8/8	8/8	8/8	8/8
C	0/8	0/8	8/8	8/8	8/8	8/8
D	0/8	0/8	6/8	6/8	8/8	8/8
E	0/8	0/8	2/8	2/8	6/8	6/8
F	0/8	0/8	8/8	8/8	8/8	8/8
G	0/8	0/8	8/8	8/8	8/8	8/8
H	0/8	0/8	8/8	8/8	8/8	8/8
J	0/8	0/8	8/8	8/8	8/8	8/8
K	0/8	0/8	7/8	7/8	8/8	8/8
L	0/8	0/8	8/8	8/8	8/8	8/8
M	0/8	0/8	8/8	8/8	8/8	8/8
N	0/8	0/8	0/8	0/8	3/8	3/8
O	0/8	0/8	7/8	7/8	8/8	8/8

3.3.3. Analysis of the Results

Results of the reference and alternative methods were in agreement for 7 laboratories.

For 7 other laboratories, the obtained results are the following:

- One laboratory (A) showed a negative result with the reference method for 1 sample spiked at the lowest level.
- Two laboratories (K and O) showed a negative VIDAS assay for 1 sample spiked at the lowest level. Colonies were found from the isolated broth and the VIDAS assay tested positive after 24 hours of incubation. The threshold of the method was not reached.
- One laboratory (L) found 1 positive with the reference method, among the 8 replicates of the uncontaminated samples, probably due to a cross-contamination.
- One laboratory (D) found all uncontaminated and contaminated samples positive with the reference method. Furthermore this lab did not implement correctly the reference method, it was excluded from the study.
- Two laboratories (E and N) showed a negative VIDAS assay for respectively 9 and 11 samples from the 16 spiked samples. As the protocol of the alternative method was not correctly implemented (enrichment temperature not respected), their results were not taken into account. As a consequence, it was asked to include into the package insert the following sentence :
« Incubation conditions may have repercussions on short detection procedures. The temperatures indicated must be scrupulously respected. In particular, it is advisable to ensure that the conditions for pre-heating the enrichment broth enable the indicated temperature to be reached. The sample preparation time (time between the end of the enrichment broth pre-heating phase and the start of the food sample incubation phase), must not exceed 45 minutes. It is recommended to use a ventilated incubator for the incubation phase. »

After exclusion of laboratories D, E and N, results from 11 laboratories were considered for calculations.

3.3.4. Interpretation of the results

3.3.4.1. Summary of the results

The global results are presented in the table below.

Table 24 : tests results for the two methods (PA: positive agreement, NA: negative agreement, ND: negative deviation, PD: positive deviation, PP: presumed positive before confirmation)

Level	Alternative method (AM)	Reference method (RM)		
		RM+	RM-	Total
L0	AM+	PA=0	PD=0	0
	AM-	ND=1 including 0 PPND	NA=87 including 0 PPNA	88
	Total	1	87	88
L1	AM+	PA=85	PD=1	86
	AM-	ND=2 including 0 PPND	NA=0 including 0 PPNA	2
	Total	87	1	88
L2	AM+	PA=88	PD=0	88
	AM-	ND=0 including 0 PPND	NA=0 including 0 PPNA	0
	Total	88	0	88
L1+L2	AM+	PA=173	PD=1	174
	AM-	ND=2 including 0 PPND	NA=0 including 0 PPNA	2
	Total	175	1	176

3.3.4.2. Summary of the results

The percentage specificity of the reference method and the alternative method is calculated using data after confirmation, based on the results of level L₀.

- Specificity of the reference method: $SP_{ref} = \left[1 - \left(\frac{P_0}{N_-} \right) \right] \times 100\% = 98.9\%$,

- Specificity of the alternative method: $SP_{alt} = \left[1 - \left(\frac{CP_0}{N_-} \right) \right] \times 100\% = 100\%$,

where:

N_- is the number of all L₀ tests;

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

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

3.3.4.3. Calculation of sensitivities, relative accuracy and false positive ratio

Based on the three different data sets, the following parameters are calculated:

- Sensitivity for the alternative method: $SE_{alt} = \frac{(PA+PD)}{(PA+ND+PD)} \times 100\%$

- Sensitivity for the reference method: $SE_{ref} = \frac{(PA+ND)}{(PA+ND+PD)} \times 100\%$

- Relative accuracy: $AC = \frac{(PA+NA)}{N} \times 100\%$

- False positive ratio for the alternative method: $FP = \frac{(FP)}{NA} \times 100\%$

where N is the total number of samples (NA + PA + PD + ND) and FP is false positive results.

Results are presented in the table below.

Table 25 : values of sensitivities, relative accuracy and false positive ratio for the three data sets

Data set	Parameter			
	SE _{alt}	SE _{ref}	RT	FPR
Interlaboratory study 11 collaborators	98.9%	99.4%	98.3%	0.0%

3.3.4.3. Determination of the acceptability limit and conclusion

The difference between (ND – PD) for the level where fractional recovery was obtained (L1) is calculated. The observed value found for (ND – PD) shall not be higher than the acceptability limit (AL). The AL is defined as [(ND – PD)_{max}] and calculated per level where fractional recovery was obtained as described below using the following three parameters:

$$- (p+)_{ref} = \frac{P_x}{N_x}, \text{ where}$$

P_x = number of samples with a positive result obtained with the reference method at level x, (L1 or L2) for all laboratories;

N_x = number of samples tested at level x (L1 or L2) with the reference method by all laboratories.

$$- (p+)_{alt} = \frac{CP_x}{N_x}, \text{ where}$$

CP_x = number of samples with a confirmed positive result obtained with the alternative method at level x (L1 or L2) for all laboratories;

N_x = number of samples tested at level x (L1 or L2) with the alternative method by all laboratories.

$$- (ND - PD)_{max} = \sqrt{3N_x \times ((p+)_{ref} + (p+)_{alt} - 2((p+)_{ref} \times (p+)_{alt}))}, \text{ where}$$

N_x = the total number of samples tested for level x (L1 or L2) by all laboratories.

The AL is not met when the observed value is higher than the AL. When the AL is not met, investigations should be made (e.g. root cause analysis) in order to provide an explanation of the observed results.

Based on the AL and the additional information, it is decided whether the alternative method is regarded as not fit for purpose. The reasons for acceptance of the alternative method in case the AL is not met shall be stated in the study report.

In this study, fractional positive results are observed at level L1 only. The different parameters obtained by the calculation are detailed in the table below:

Table 26 : values obtained for the determination of the acceptability limit

Parameter	Value
N_x	88
$(p+)_{ref}$	0.99
$(p+)_{alt}$	0.98
$(ND-PD)_{max}$	2.98
$(ND-PD)$	1

The value (ND-PD) is inferior to the AL in all cases, so the requirements of the standard ISO 16140-2 : 2016 are fulfilled.

The performance of the alternative method and the reference method can be considered as equivalent.

3.3.4.4. Determination of the relative level of detection

This evaluation is performed according to the EN ISO 16140-2 : 2016 Excel spreadsheet available at https://standards.iso.org/iso/16140/-2/ed-1/en/RLOD_inter-lab-study_16140-2_AnnexF_ver1_28-06-2017.xls.

As there is limited experience with the interpretation of this approach, the results are used only for information. Results are shown in the table below :

Table 27 : values obtained for the determination of the relative level of detection

Method	LOD50%	LOD95%	RLOD
Reference	0,68 [0,43 ; 1,07]	2,94 [1,87 ; 4,63]	1,2 [0,7 ; 1,9]
Alternative	0,81 [0,55 ; 1,18]	3,49 [2,39 ; 5,10]	

4. Conclusion

- Method comparison study

This study concerned 461 samples of four categories of products:

- Raw meat
- Raw vegetal products
- Raw milk and raw milk dairy products
- Environmental samples

Values obtained for the criteria of the sensitivity study are the following, depending on the incubation times and the protocol of confirmation:

- sensitivity of the alternative method : from 84.0% to 89.1%
- sensitivity of the reference method : from 82.4% to 85.0%
- relative trueness: from 85.7% to 86.1%
- false positive ratio: from 1.3% to 4.4%

Some discordant results were observed. These discordances may be mostly linked to the sampling which is different between the two methods.

The relative level of detection of the alternative method and the reference method was evaluated for all categories. The results are comparable between both methods.

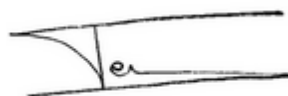
The specificity of the method is satisfactory.

The study of the practicability of the alternative method shows a simple and easy-to-use method and significant time savings compared to the reference method.

- Interlaboratory study

Results obtained from the selected laboratories showed that the performance of the alternative method and the reference method can be considered as equivalent.

TOURS, the 21th of May 2021
Stéphanie ROTILY-FORCIOLI
Aid of Microbiology service



Appendices

APPENDIX 1

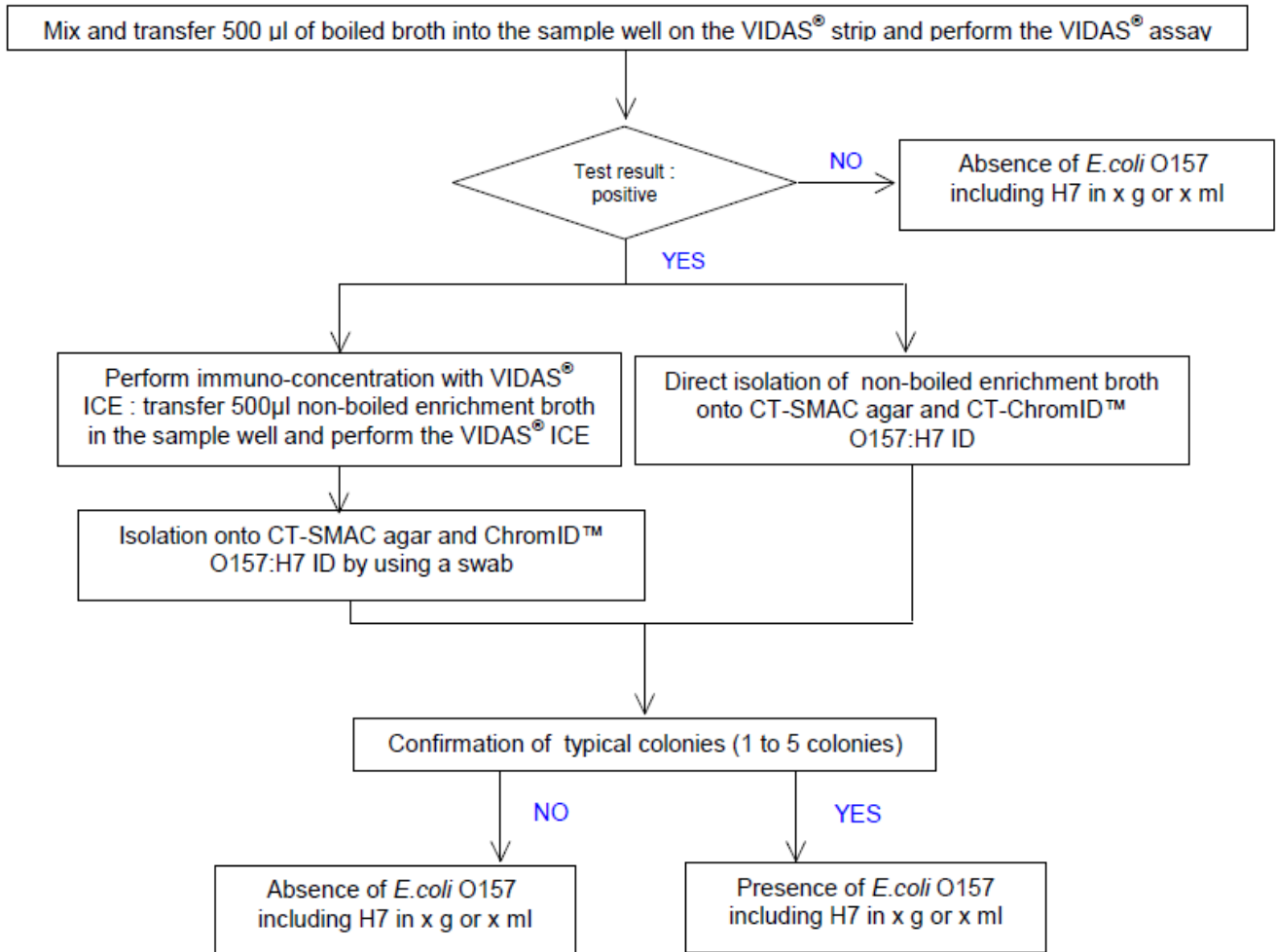
ALTERNATIVE METHOD PROTOCOL - VIDAS ECPT

Category	Raw meat			Raw vegetal products	Raw milk and raw milk products	Environmental samples
Type	Raw beef and veal (t1) and Seasoned raw beef and veal (t2) and -Other raw meats (t3)	Raw beef and veal (t1) and Seasoned raw beef and veal (t2)	Raw beef and veal (t1)	Fruits (t1) Green plants (t2) Others plants and mix vegetables (t3)	Goat and sheep raw milk cheese (t1) Raw milks and others raw milk products (t2) Cow raw milk cheese (t3)	Process waters (t1) Dust and residues (t2) Surface samples (t3)
Protocol	P1	P2	P3	P4	P5	P6
Test portion	25 g	25 g	50 to 375 g	25 g	25 g	25 g or other test portion (swab, wipe, sponge...)
Dilution	1/10	1/10	1/4	1/10	1/10	1/10 Swab in 10 mL Wipe in 100 mL
Broth	Pre-warmed BPW 41,5°C + Vancomycin 8mg/L	Pre-warmed BPW 41.5°C	Pre-warmed BPW 41,5°C + Vancomycin 8mg/L	Pre-warmed BPW 41,5°C + Vancomycin 8mg/L	BPW + Acriflavine 10mg/L	Pre-warmed BPW + Vancomycin 8mg/L + cefixime 0.0125mg/L + cefsulodin 10mg/L
Incubation time and temperature	41.5±1°C for 16 – 24 h	41.5±1°C for 7 – 24 h	41.5±1°C for 8 – 24 h	41.5±1°C for 8 – 24 h	41.5±1°C for 20 – 26 h	41.5±1°C for 15 – 24 h
Volume to transfer in a tube and heat at 95 – 100°C for 5±1 min	1 – 2 mL or Heat and Go (except poultry products)	1 – 2 mL or Heat and Go	2 – 3 mL	1 – 2 mL or Heat and Go	1 – 2 mL or Heat and Go	1 – 2 mL or Heat and Go



VIDAS protocol detection

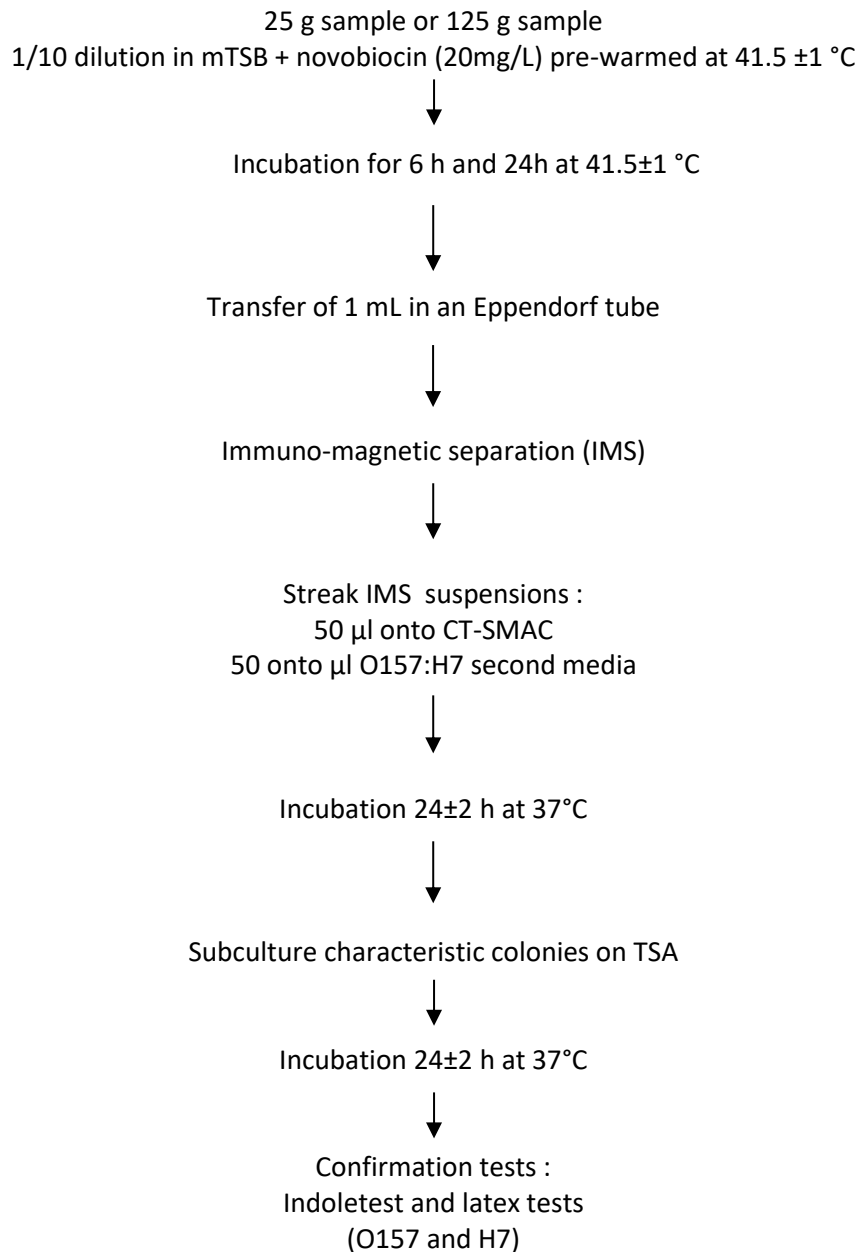
VIDAS protocol detection



APPENDIX 2

REFERENCE METHOD PROTOCOL

ISO 16654 : Microbiology of food and animal feeding stuffs – Horizontal method for the detection of *Escherichia coli* O157



APPENDIX 3

ARTIFICIAL CONTAMINATIONS OF SAMPLES

Raw meat products – Protocol 1

Year	Code	Product	Strain			Stress	Intensity of the stress	CFU/test portion	Global result
			N°	Name	Origin				
2009	AB8	Aglet of duck	EC54	<i>E. coli</i> O 157	Environment	24 heures at 4°C	0,5	1,4	+
2009	AD8	Smoked bacon	EC31	<i>E coli</i> O157 H7	ATCC 43895 origin : hamburger	24 heures at 4°C	0,7	6,0	+
2009	AP1	Chicken legs	EC31	<i>E coli</i> O157 H7	ATCC 43895 origin : hamburger	48 heures at 4°C	0,5	3,6	+
2009	AP2	Filet mignon of pork	EC31	<i>E. coli</i> O 157	ATCC 43895 origin : hamburger	48 heures at 4°C	0,5	2,5	+
2009	AP3	Calf sweetbread	EC31	<i>E. coli</i> O 157	ATCC 43895 origin : hamburger	48 heures at 4°C	0,5	4,1	+
2009	AP4	Sausage meat pure pork	EC42	<i>E coli</i> O157 H7	ATCC43890 (human faeces)	48 heures at 4°C	0,4	3,6	+
2009	AP5	Pork rib fillet	EC31	<i>E coli</i> O157 H7	ATCC 43895 origin : hamburger	48 heures at 4°C	0,5	2,4	+
2009	AP6	Pork shoulder chop	EC42	<i>E coli</i> O157 H7	ATCC43890 (human faeces)	48 heures at 4°C	0,4	3,0	+
2009	AP7	Raw guinea fowl	EC42	<i>E. coli</i> O 157	ATCC43890 (human faeces)	48 heures at 4°C	0,4	4,2	+
2009	AP8	Kidneys of pork	EC42	<i>E. coli</i> O 157	ATCC43890 (human faeces)	48 heures at 4°C	0,4	4,8	+
2009	AQ3	Flank steak marinated with shallot	EC82	<i>E coli</i> O157 H7	Beef	48 heures at 4°C	0,8	3,4	+
2009	AQ4	Sliced pork sauce toscane	EC81	<i>E coli</i> O157 H7	Pork	48 heures at 4°C	0,8	3,2	+
2009	AQ5	Merguez beef-sheep	EC82	<i>E coli</i> O157 H7	Beef	48 heures at 4°C	0,8	2,6	+
2009	AQ8	Flank steak of horse	EC56	<i>E.coli</i> O157 H7-	Environment	48 heures at 4°C	0,4	3,4	+
2009	AQ10	Turkeu cutlet	EC81	<i>E coli</i> O157 H7	Pork	48 heures at 4°C	0,8	8,2	+
2009	AQ11	Magret of duck dried	EC56	<i>E.coli</i> O157 H7-	Environment	48 heures at 4°C	0,4	5,4	+
2009	AR1	Sausage of turkey	EC83	<i>E coli</i> O157 H7	Cider	48 heures at 4°C	0,3	6,1	+
2009	AR2	Veal sauté	EC48	<i>E coli</i> O157 H7	Collection	48 heures at 4°C	0,5	6,9	+
2009	AR3	Ribs of lamb	EC48	<i>E coli</i> O157 H7	Collection	48 heures at 4°C	0,5	7,9	+
2009	AR9	Rump of beef	EC48	<i>E coli</i> O157 H7	Collection	48 heures at 4°C	0,5	5,9	+
2009	AR10	Beef meat for fondue	EC9	<i>E.coli</i> O157 H7-	Clinic origin	48 heures at 4°C	1,7	7,6	+
2009	AR12	Ground beef	EC80	<i>E coli</i> O157 H7	Ground beef	48 heures at 4°C	0,4	7,5	+
2014	EC1	Frozen ground beef + onions	ESC.1.71	<i>Escherichia coli</i> O157: H7	Clinic origin	24h at -80°C	0,5	3,0	+
2014	EC2	Ground beef 1	ESC.1.71	<i>Escherichia coli</i> O157: H7	Clinic origin	24h at -80°C	0,5	3,0	+
2014	EC3	Frozen ground beef + onions	ESC.1.72	<i>Escherichia coli</i> O157: H7	Clinic origin	24h at -80°C	0,4	0,0	-
2014	EC4	Frozen beef balls	ESC.1.72	<i>Escherichia coli</i> O157: H7	Clinic origin	24h at -80°C	0,4	0,0	-
2014	EC5	Sliced raw beef	ESC.1.72	<i>Escherichia coli</i> O157: H7	Clinic origin	24h at -80°C	0,4	0,0	+
2014	EC7	Ground beef + tomatoe	ESC.1.110	<i>Escherichia coli</i> O157: H7	Ground beef	24h at -80°C	0,4	2,3	+
2014	EC8	Veal sausage	ESC.1.110	<i>Escherichia coli</i> O157: H7	Ground beef	24h at -80°C	0,4	2,3	+
2014	EC9	Ground fresh veal	ESC.1.97	<i>Escherichia coli</i> O157: H7	USDA 505B (beef)	24h at -80°C	1,1	2,0	+
2014	EC10	Chopped veal junior (soy protein)	ESC.1.97	<i>Escherichia coli</i> O157: H7	USDA 505B (beef)	24h at -80°C	1,1	2,0	+
2014	EC14	Veal cutlet	ESC.1.89	<i>Escherichia coli</i> O157: H7	CIP 105214	24h at -80°C	0,4	8,0	+
2014	EC15	Grilled veal steak	ESC.1.90	<i>Escherichia coli</i> O157: H7	CIP 105243	24h at -80°C	1,8	2,3	+
2014	EC16	Ground beef + tomatoe	ESC.1.90	<i>Escherichia coli</i> O157: H7	CIP 105243	24h at -80°C	1,8	2,3	+
2014	EC17	Beef tartar	ESC.1.109	<i>Escherichia coli</i> O157: H7	Ground beef	24h at -80°C	0,8	3,7	+
2014	EC18	Carpaccio	ESC.1.109	<i>Escherichia coli</i> O157: H7	Ground beef	24h at -80°C	0,8	3,7	+

Year	Code	Product	Strain			Stress	Intensity of the stress	CFU/test portion	Global result
			N°	Name	Origin				
2014	EC25	Steak minced beef 20% fat ith onion	ESC.1.101	<i>Escherichia coli</i> O157: H7	Slaughterhouse	24h at -80°C	1,1	2,7	+
2014	EC26	Ground beef halal 15% fat	ESC.1.101	<i>Escherichia coli</i> O157: H7	Slaughterhouse	24h at -80°C	1,1	2,7	+
2014	EC27	Ground beef 15% fat (vegetable prot)	ESC.1.101	<i>Escherichia coli</i> O157: H7	Slaughterhouse	24h at -80°C	1,1	2,7	+
2014	EC28	Ground beef bolognese 20% fat	ESC.1.105	<i>Escherichia coli</i> O157: H7	Environment	6 days at -20°C	1,0	2,0	+
2014	EC29	Frozen beef ball	ESC.1.105	<i>Escherichia coli</i> O157: H7	Environment	6 days at -20°C	1,0	2,0	+
2014	EC30	Frozen minced steak	ESC.1.105	<i>Escherichia coli</i> O157: H7	Environment	6 days at -20°C	1,0	2,0	+
2014	EC31	Frozen ground beef 15%fat	ESC.1.103	<i>Escherichia coli</i> O157: H7	human faeces	6 days at -20°C	0,6	1,3	+
2014	EC32	Frozen beef tongue	ESC.1.103	<i>Escherichia coli</i> O157: H7	human faeces	6 days at -20°C	0,6	1,3	+
2014	EC33	Raw beef	ESC.1.103	<i>Escherichia coli</i> O157: H7	human faeces	6 days at -20°C	0,6	1,3	+
2014	EC34	Heart of rumsteak	ESC.1.95	<i>Escherichia coli</i> O157: H7	USDA 45753-32 (ground beef)	6 days at -20°C	0,8	1,0	+
2014	EC35	Beef carpaccio	ESC.1.95	<i>Escherichia coli</i> O157: H7	USDA 45753-32 (ground beef)	6 days at -20°C	0,8	1,0	+
2014	EC36	Beef balls bolognese	ESC.1.95	<i>Escherichia coli</i> O157: H7	USDA 45753-32 (ground beef)	6 days at -20°C	0,8	1,0	+
2014	EC52	Beef balls 20% fat	ESC.1.98	<i>Escherichia coli</i> O157: H7	Apple cider	6 days at -20°C	0,8	0,3	-
2014	EC53	Ground beef 15% fat	ESC.1.82	<i>Escherichia coli</i> O157: H7	NCTC 12900	6 days at -20°C	1,1	0,7	-
2014	EC54	Meat for bourgignon	ESC.1.104	<i>Escherichia coli</i> O157: H7	Steak	6 days at -20°C	1,2	0,0	-
2014	EC63	Ground beef 15% fat +onions	ESC.1.82	<i>Escherichia coli</i> O157: H7	NCTC 12900	6 days at -20°C	1,1	3,0	+
2014	EC65	Ground beef 15% fat	ESC.1.93	<i>Escherichia coli</i> O157: H7	CIP 105917	6 days at -20°C	0,6	11,0	+
2017	VEC1	Beef tartar and saulce	ESC.1.104	<i>E coli</i> O157 H7	Steak	seeding 72h at 5°C	/	3	+
2017	VEC2	Ground meat bolo	ESC.1.104	<i>E coli</i> O157 H7	Steak	seeding 72h at 5°C	/	3	+
2017	VEC3	Stuffed veal	ESC.1.104	<i>E coli</i> O157 H7	Steak	seeding 72h at 5°C	/	3	+
2017	VEC4	Veal cutlet	ESC.1.109	<i>E coli</i> O157 H7	Ground beef	seeding 72h at 5°C	/	2,2	+
2017	VEC5	Veal balls	ESC.1.109	<i>E coli</i> O157 H7	Ground beef	seeding 72h at 5°C	/	2,2	+
2017	VEC6	Ground beef	ESC.1.110	<i>E coli</i> O157 H7	Ground beef	seeding 72h at 5°C	/	3	+
2017	VEC7	Carpaccio parmiggiano	ESC.1.110	<i>E coli</i> O157 H7	Ground beef	seeding 72h at 5°C	/	3	+

Raw meat products – Protocol 2

Year	Code	Product	Strain			Stress	Intensity of the stress	CFU/test portion	Global result
			N°	Name	Origin				
2009	B1	Ground beef	7	<i>E.coli</i> O157:H7	Clinic origin	10min at -80°C	0,8	2,0	+
2009	B2	Ground beef	7	<i>E.coli</i> O157:H7	Clinic origin	10min at -80°C	0,8	4,0	+
2009	B4	Ground beef	7	<i>E.coli</i> O157:H7	Clinic origin	10min at -80°C	0,8	8,0	+
2009	B5	Ground beef	2	<i>E.coli</i> O157:H7	Faeces	10min at -80°C	>2,6	3,6	-
2009	B6	Ground beef	2	<i>E.coli</i> O157:H7	Faeces	10min at -80°C	>2,6	7,2	-
2009	B7	Ground beef	2	<i>E.coli</i> O157:H7	Faeces	10min at -80°C	>2,6	2,9	-
2009	B8	Ground beef	2	<i>E.coli</i> O157:H7	Faeces	10min at -80°C	>2,6	3,2	-
2009	C1	Ground beef	10	<i>E.coli</i> O157:H7	Clinic origin	72h at +4°C	0,4	1,0	+
2009	C3	Ground beef	10	<i>E.coli</i> O157:H7	Clinic origin	72h at +4°C	0,4	1,2	+
2009	C4	Ground beef	10	<i>E.coli</i> O157:H7	Clinic origin	72h at +4°C	0,4	2,4	+
2009	C5	Ground beef	11	<i>E.coli</i> O157:H7	Clinic origin	72h at +4°C	0,5	1,4	+
2009	C8	Ground beef	11	<i>E.coli</i> O157:H7	Clinic origin	72h at +4°C	0,5	3,6	+
2009	D1	Flank	7	<i>E.coli</i> O157:H7	Clinic origin	10min at -80°C	0,4	0,8	+
2009	D2	Chuck	7	<i>E.coli</i> O157:H7	Clinic origin	10min at -80°C	0,4	1,6	+
2009	D3	Flank	7	<i>E.coli</i> O157:H7	Clinic origin	10min at -80°C	0,4	2,4	+
2009	D4	Chuck	7	<i>E.coli</i> O157:H7	Clinic origin	10min at -80°C	0,4	3,2	+
2009	D5	Flank	12	<i>E.coli</i> O157:H7	Clinic origin	10min at -80°C	0,5	2,2	+
2009	D6	Ground beef Halal	12	<i>E.coli</i> O157:H7	Clinic origin	10min at -80°C	0,5	4,4	+
2009	F1	Ground beef (<15%fat) - batcht 1	6	<i>E.coli</i> O157:H7	Collection	10min at -80°C and 5 min at 41,5°C	0,4	1,9	+
2009	F2	Ground beef (<15%fat) - batcht 1	6	<i>E.coli</i> O157:H7	Collection	10min at -80°C and 5 min at 41,5°C	0,4	3,8	+
2009	F5	Ground beef (<15%fat) - batcht 2	25	<i>E.coli</i> O157:H7	Collection P1524	10min at -80°C and 5 min at 41,5°C	0,6	1,9	+
2009	F6	Ground beef (<15%fat) - batcht 2	25	<i>E.coli</i> O157:H7	Collection P1524	10min at -80°C and 5 min at 41,5°C	0,6	3,8	+
2009	F7	Ground beef (<20%fat)	25	<i>E.coli</i> O157:H7	Collection P1524	10min at -80°C and 5 min at 41,5°C	0,6	5,7	+
2009	F8	Ground beef (<20%fat)	25	<i>E.coli</i> O157:H7	Collection P1524	10min at -80°C and 5 min at 41,5°C	0,6	7,6	+
2009	i1	Ground veal (10%fat) - batcht 1	40	<i>E.coli</i> O157:H7	ATCC 35150 (human origin)	10min at -80°C and 5 min at 41,5°C	0,7	3,8	+
2009	O4	Veal cutlet	67	<i>E.coli</i> O157 H:7	Collection	7 days +4°C	1,9	8,1	+
2017	VEC8	Beef carpaccio parmigiano	ESC.1.104	<i>E.coli</i> O157:H7	Steak	seeding 72h at 5°C	/	1,8	+
2017	VEC9	Beef carpaccio olive	ESC.1.104	<i>E.coli</i> O157:H7	Steak	seeding 72h at 5°C	/	1,8	+
2017	VEC10	Oriental beef balls	ESC.1.104	<i>E.coli</i> O157:H7	Steak	seeding 72h at 5°C	/	1,8	+
2017	VEC11	Ground beef	ESC.1.104	<i>E.coli</i> O157:H7	Steak	seeding 72h at 5°C	/	1,8	+
2017	VEC12	Veal stuffing	ESC.1.108	<i>E.coli</i> O157:H7	Ground beef	seeding 72h at 5°C	/	1,4	+
2009	Y3	Beef balls paprika	51	<i>E.coli</i> O157	Faeces	3 days +4°C	0,5	4,4	+
2009	Y4	Minced meat	54	<i>E.coli</i> O157	Environment	3 days +4°C	0,3	8,8	+
2009	Y5	Provençal meatballs	53	<i>E.coli</i> O157	Environment	3 days +4°C	0,6	8,2	+

Raw meat products – Protocol 3

Year	Code	Product	Strain			Stress	Intensity of the stress	CFU/test portion	Global result
			N°	Name	Origin				
2009	E1	Ground beef (<15% fat)	22	<i>E.coli</i> O157:H7	ATCC 43888	48h à +4°C	0,65	3,5	+
2009	E2	Ground beef (<15% fat)	22	<i>E.coli</i> O157:H7	ATCC 43888	48h à +4°C	0,65	4,2	+
2009	E3	Ground beef (<15% fat)	22	<i>E.coli</i> O157:H7	ATCC 43888	48h à +4°C	0,65	4,9	+
2009	E4	Ground beef (<15% fat)	22	<i>E.coli</i> O157:H7	ATCC 43888	48h à +4°C	0,65	2,1	+
2009	H1	Ground veal (10% fat)	31	<i>E.coli</i> O157:H7	ATCC 43895 (hamburger)	72h à +4°C	0,86	4,5	+
2009	H2	Ground veal (10% fat)	31	<i>E.coli</i> O157:H7	ATCC 43895 (hamburger)	72h à +4°C	0,86	6,0	+
2009	H3	Ground veal (10% fat)	31	<i>E.coli</i> O157:H7	ATCC 43895 (hamburger)	72h à +4°C	0,86	7,5	+
2009	J1	Ground veal cutlet	41	<i>E.coli</i> O157:H7	ATCC 43894 (human origin)	48h à +4°C	0,62	6,8	+
2009	J2	Ground veal cutlet	41	<i>E.coli</i> O157:H7	ATCC 43894 (human origin)	48h à +4°C	0,62	8,5	+
2009	L1	Beef fillet	44	<i>E.coli</i> O157:H7	Collection	72h à +4°C	1,26	6,0	+
2009	L2	Beef	44	<i>E.coli</i> O157:H7	Collection	72h à +4°C	1,26	7,5	+
2009	N1	Rump	56	<i>E.coli</i> O157:H7	Environment	10min à -80°C puis 5 min à 41,5°C	0,64	1,0	+
2009	N2	Beef	56	<i>E.coli</i> O157:H7	Environment	10min à -80°C puis 5 min à 41,5°C	0,64	1,3	+
2009	N3	Ground beef	56	<i>E.coli</i> O157:H7	Environment	10min à -80°C puis 5 min à 41,5°C	0,64	1,7	+
2009	N4	Ground beef	56	<i>E.coli</i> O157:H7	Environment	10min à -80°C puis 5 min à 41,5°C	0,64	1,9	+
2009	N5	Veal	69	<i>E.coli</i> O157:H7	Faeces bovin	10min à -80°C puis 5 min à 41,5°C	0,64	1,7	+
2009	N6	Ground veal	69	<i>E.coli</i> O157:H7	Faeces bovin	10min à -80°C puis 5 min à 41,5°C	0,64	1,9	+
2017	V140	Turkey scallop	ESC.1.76	<i>E.coli</i> O157:H7	Clinical origin	seeding 72h at 5°C	/	0,6	+
2017	V141	Meat for bourguignon	ESC.1.76	<i>E.coli</i> O157:H7	Clinical origin	seeding 72h at 5°C	/	0,6	-
2017	V142	Rump steak	ESC.1.76	<i>E.coli</i> O157:H7	Clinical origin	seeding 72h at 5°C	/	0,6	+
2017	V143	Veal cutlet	ESC.1.76	<i>E.coli</i> O157:H7	Clinical origin	seeding 72h at 5°C	/	2,4	+
2017	V144	Minced veal (15% fat)	ESC.1.96	<i>E.coli</i> O157:H7	Pork	seeding 72h at 5°C	/	3,0	+
2017	V145	Rib	ESC.1.97	<i>E.coli</i> O157:H7	Beef	seeding 72h at 5°C	/	2,0	-
2017	V146	Ossa bucco, veal	ESC.1.97	<i>E.coli</i> O157:H7	Beef	seeding 72h at 5°C	/	2,0	+
2017	V156	Minced meat (15% fat)	ESC.1.76	<i>E.coli</i> O157:H7	Clinical origin	seeding 72h at 5°C	/	2,6	+
2017	V157	Minced meat (15% fat)	ESC.1.76	<i>E.coli</i> O157:H7	Clinical origin	seeding 72h at 5°C	/	2,6	+
2017	V158	Minced meat (5% fat)	ESC.1.96	<i>E.coli</i> O157:H7	Pork	seeding 72h at 5°C	/	3,0	+
2017	V159	Minced meat (20% fat)	ESC.1.96	<i>E.coli</i> O157:H7	Pork	seeding 72h at 5°C	/	3,0	+
2017	V160	Minced meat (15% fat)	ESC.1.97	<i>E.coli</i> O157:H7	Beef	seeding 72h at 5°C	/	2,0	+
2017	V161	Minced meat (15% fat)	ESC.1.97	<i>E.coli</i> O157:H7	Beef	seeding 72h at 5°C	/	2,0	+
2017	V162	Minced meat (15% fat)	ESC.1.110	<i>E.coli</i> O157:H7	Ground beef	seeding 72h at 5°C	/	1,0	+
2017	V163	Minced meat (15% fat)	ESC.1.110	<i>E.coli</i> O157:H7	Ground beef	seeding 72h at 5°C	/	1,0	+

Raw vegetables – Protocol 4

Year	Code	Product	Strain			Stress	Intensity of the stress	CFU/test portion	Global result
			N°	Name	Origin				
2009	O2	Heart of lettuce	EC43	<i>E coli O157 H7</i>	ATCC 43889 (human origin)	7 days +4°C	1,77	11,9	+
2009	O6	Lamb's lettuce	EC44	<i>E coli O157 H7</i>	Collection	7 days +4°C	1,87	6,3	+
2009	O7	Heart of lettuce	EC44	<i>E coli O157 H7</i>	Collection	7 days +4°C	1,87	7,2	+
2009	V5	Snow peas	EC58	<i>E coli O157 H7</i>	Clinic origin	48h +4°C	0,56	6,0	+
2009	V6	Mushroom	EC58	<i>E coli O157 H7</i>	Clinic origin	48h +4°C	0,56	7,5	+
2009	V9	Bgreen beans	EC59	<i>E coli O157 H7</i>	Clinic origin	48h +4°C	0,77	7,2	+
2017	VEC100	Orange juice	ESC.1.103	<i>E coli O157 H7</i>	Human faeces	seeding 72h at 5°C	/	3,0	+
2017	VEC101	Gratted carrot	ESC.1.103	<i>E coli O157 H7</i>	Human faeces	seeding 72h at 5°C	/	3,0	+
2017	VEC102	Apple	*	<i>E coli O157 H7</i>	*	seeding 72h at 5°C	/	3,0	-
2017	VEC103	Mushroom	ESC.1.109	<i>E coli O157 H7</i>	Ground beef	seeding 72h at 5°C	/	3,0	+
2017	VEC104	Chicory	*	<i>E coli O157 H7</i>	*	seeding 72h at 5°C	/	3,0	-
2017	VEC105	Green beans (frozen)	*	<i>E coli O157 H7</i>	*	seeding 72h at 5°C	/	3,0	-
2017	VEC106	Peas (frozen)	ESC.1.95	<i>E coli O157 H7</i>	Ground beef	seeding 72h at 5°C	/	2,8	+
2017	VEC107	Spinach (frozen)	ESC.1.95	<i>E coli O157 H7</i>	Ground beef	seeding 72h at 5°C	/	2,8	+
2017	VEC108	linseed	ESC.1.95	<i>E coli O157 H7</i>	Ground beef	seeding 72h at 5°C	/	2,8	+
2017	VEC147	Onions (frozen)	ESC.1.95	<i>E coli O157 H7</i>	Ground beef	seeding 72h at 5°C	/	2,4	+
2017	VEC148	Courgette (frozen)	ESC.1.95	<i>E coli O157 H7</i>	Ground beef	seeding 72h at 5°C	/	2,4	+
2017	VEC174	Apple : golden	ESC.1.98	<i>E coli O157 H7</i>	Apple cider	seeding 72h at 5°C	/	3,0	+
2017	VEC175	Pear : william	ESC.1.98	<i>E coli O157 H7</i>	Apple cider	seeding 72h at 5°C	/	3,0	+
2017	VEC176	Green pepper	ESC.1.98	<i>E coli O157 H7</i>	Apple cider	seeding 72h at 5°C	/	3,0	+
2017	VEC177	Orange paper	ESC.1.75	<i>E coli O157 H7</i>	Clinic origin	seeding 72h at 5°C	/	2,6	+
2017	VEC178	Chicory	ESC.1.75	<i>E coli O157 H7</i>	Clinic origin	seeding 72h at 5°C	/	2,6	+
2017	VEC56	Lamb's lettuce	ESC.1.92	<i>E coli O157 H7</i>	CIP 106327	seeding 72h at 5°C	/	0,6	-
2017	VEC57	Gratted carrot	ESC.1.92	<i>E coli O157 H7</i>	CIP 106327	seeding 72h at 5°C	/	0,6	-
2017	VEC58	Ananas	ESC.1.92	<i>E coli O157 H7</i>	CIP 106327	seeding 72h at 5°C	/	0,6	+
2017	VEC59	Cherry tomato	*	<i>E coli O157 H7</i>	*	seeding 72h at 5°C	/	0,6	-
2017	VEC60	Cucumber	*	<i>E coli O157 H7</i>	*	seeding 72h at 5°C	/	0,6	-
2017	VEC61	Red grappe	*	<i>E coli O157 H7</i>	*	seeding 72h at 5°C	/	0,6	-
2017	VEC62	Melon	ESC.1.93	<i>E coli O157 H7</i>	CIP 106317	seeding 72h at 5°C	/	0,6	+
2017	VEC63	Beetroot	ESC.1.93	<i>E coli O157 H7</i>	CIP 106317	seeding 72h at 5°C	/	0,6	-
2017	VEC64	Baby carrot	ESC.1.93	<i>E coli O157 H7</i>	CIP 106317	seeding 72h at 5°C	/	0,6	+
2017	VEC65	Strawberry	*	<i>E coli O157 H7</i>	*	seeding 72h at 5°C	/	0,6	-
2017	VEC66	Kiwi	*	<i>E coli O157 H7</i>	*	seeding 72h at 5°C	/	0,6	-
2017	VEC67	Radish	*	<i>E coli O157 H7</i>	*	seeding 72h at 5°C	/	0,6	-
2017	VEC68	Salad : Scarole	*	<i>E coli O157 H7</i>	*	seeding 72h at 5°C	/	0,6	-
2017	VEC69	White leeks	*	<i>E coli O157 H7</i>	*	seeding 72h at 5°C	/	0,6	-
2017	VEC70	Watermelon	*	<i>E coli O157 H7</i>	*	seeding 72h at 5°C	/	0,6	-

Year	Code	Product	Strain			Stress	Intensity of the stress	CFU/test portion	Global result
			N°	Name	Origin				
2017	VEC71	Chicory	ESC.1.98	<i>E coli O157 H7</i>	Apple cider	seeding 72h at 5°C	/	0,6	+
2017	VEC72	Celery	ESC.1.98	<i>E coli O157 H7</i>	Apple cider	seeding 72h at 5°C	/	0,6	+
2017	VEC73	Mushroom	ESC.1.98	<i>E coli O157 H7</i>	Apple cider	seeding 72h at 5°C	/	0,6	+
2017	VEC94	Sweet green pepper	ESC.1.102	<i>E coli O157 H7</i>	Human faeces	seeding 72h at 5°C	/	2,8	+
2017	VEC95	Sweet yellow pepper	ESC.1.102	<i>E coli O157 H7</i>	Human faeces	seeding 72h at 5°C	/	2,8	+
2017	VEC96	Sweet red pepper	ESC.1.102	<i>E coli O157 H7</i>	Human faeces	seeding 72h at 5°C	/	2,8	+
2017	VEC97	Eggplant	ESC.1.102	<i>E coli O157 H7</i>	Human faeces	seeding 72h at 5°C	/	2,8	+
2017	VEC98	Pear	ESC.1.103	<i>E coli O157 H7</i>	Human faeces	seeding 72h at 5°C	/	3,0	+
2017	VEC99	Cherry tomato	ESC.1.103	<i>E coli O157 H7</i>	Human faeces	seeding 72h at 5°C	/	3,0	+
2009	X1	Lamb's lettuce	EC57	<i>E coli O157 H7</i>	Clinic origin	10 jours +4°C	1,6	7,5	+
2009	X4	Brocolis	EC57	<i>E coli O157 H7</i>	Clinic origin	10 jours +4°C	1,6	12,0	+

Raw milk and raw milk dairy products – Protocol 5

Year	Code	Product	Strain			Stress	Intensity of the stress	CFU/test portion	Global result
			N°	Name	Origin				
2017	VEC74	Cheese Valençay	*	<i>E coli O157 H7</i>	*	seeding 72h at 5°C	/	2,2	-
2017	VEC76	Goat cheese la croseta	*	<i>E coli O157 H7</i>	*	seeding 72h at 5°C	/	1,2	-
2017	VEC82	Goat cheese	*	<i>E coli O157 H7</i>	*	seeding 72h at 5°C	/	2,4	-
2017	VEC131	Goat cheese Capri de Touraine	*	<i>E coli O157 H7</i>	*	seeding 72h at 5°C	/	2,6	-
2017	VEC115	Cheese Briquette	*	<i>E coli O157 H7</i>	*	seeding 72h at 5°C	/	4,2	-
2017	VEC132	Goat cheese Selle sur Cher	*	<i>E coli O157 H7</i>	*	seeding 72h at 5°C	/	2,6	-
2017	VEC81	Cheese Morbier	*	<i>E coli O157 H7</i>	*	seeding 72h at 5°C	/	1,8	-
2017	VEC118	Cheese t'Chiot biloute	*	<i>E coli O157 H7</i>	*	seeding 72h at 5°C	/	2,8	-
2017	VEC120	Cheese meule de Savoie	*	<i>E coli O157 H7</i>	*	seeding 72h at 5°C	/	2,8	-
2017	VEC121	Cheese Morbier	*	<i>E coli O157 H7</i>	*	seeding 72h at 5°C	/	2,8	-
2017	VEC130	Cheese Brie	*	<i>E coli O157 H7</i>	*	seeding 72h at 5°C	/	2,6	-
2017	VEC133	Cheese Camembert	*	<i>E coli O157 H7</i>	*	seeding 72h at 5°C	/	2,6	-
2017	VEC134	Cheese Parmigiano	*	<i>E coli O157 H7</i>	*	seeding 72h at 5°C	/	1,8	-
2017	VEC167	Cheese Comté	*	<i>E coli O157 H7</i>	*	seeding 72h at 5°C	/	1,4	-
2017	VEC168	Cheese Le Petit Camembert	*	<i>E coli O157 H7</i>	*	seeding 72h at 5°C	/	3,0	-
2017	VEC169	Cheese Petit Reblochon	*	<i>E coli O157 H7</i>	*	seeding 72h at 5°C	/	3,0	-
2017	VEC77	Cheese camembert	ESC.1.96	<i>E coli O157 H7</i>	Pork	seeding 72h at 5°C	/	1,2	+
2017	VEC114	Cheese Roquefort	ESC.1.94	<i>E coli O157 H7</i>	Clinic origin	seeding 72h at 5°C	/	4,2	+
2017	VEC116	Cheese Tome	ESC.1.94	<i>E coli O157 H7</i>	Clinic origin	seeding 72h at 5°C	/	4,2	+
2017	VEC117	Cheese comté	ESC.1.94	<i>E coli O157 H7</i>	Clinic origin	seeding 72h at 5°C	/	4,2	+
2017	VEC119	Cheese cabecou	ESC.1.96	<i>E coli O157 H7</i>	Pork	seeding 72h at 5°C	/	0,0	+
2017	VEC122	Cheese Abondance	ESC.1.99	<i>E coli O157 H7</i>	Human faeces	seeding 72h at 5°C	/	3,2	+
2017	VEC123	Cheese	ESC.1.99	<i>E coli O157 H7</i>	Human faeces	seeding 72h at 5°C	/	3,2	+
2017	VEC124	Cheese Morbier	ESC.1.99	<i>E coli O157 H7</i>	Human faeces	seeding 72h at 5°C	/	3,2	+
2017	VEC125	Cheese petit camembert	ESC.1.99	<i>E coli O157 H7</i>	Human faeces	seeding 72h at 5°C	/	3,2	+
2017	VEC126	Raw butter	ESC.1.101	<i>E coli O157 H7</i>	Slaughterhouse	seeding 72h at 5°C	/	2,8	+
2017	VEC127	Goat cheese	ESC.1.101	<i>E coli O157 H7</i>	Slaughterhouse	seeding 72h at 5°C	/	2,8	+
2017	VEC128	Cheese boulette d'avesnes	ESC.1.101	<i>E coli O157 H7</i>	Slaughterhouse	seeding 72h at 5°C	/	2,8	+
2017	VEC129	Cheese cœur de bray	ESC.1.101	<i>E coli O157 H7</i>	Slaughterhouse	seeding 72h at 5°C	/	2,8	+
2017	VEC135	Cheese comté	ESC.1.135	<i>E coli O157 H7</i>	Raw milk	seeding 72h at 5°C	/	1,8	+
2017	VEC136	Cheese	ESC.1.135	<i>E coli O157 H7</i>	Raw milk	seeding 72h at 5°C	/	1,8	+
2017	VEC137	Raw milk	ESC.1.135	<i>E coli O157 H7</i>	Raw milk	seeding 72h at 5°C	/	1,8	+
2017	VEC138	Raw milk	ESC.1.129	<i>E coli O157 H7</i>	Ground beef	seeding 72h at 5°C	/	3,2	+
2017	VEC139	Raw milk	ESC.1.104	<i>E coli O157 H7</i>	Steak	seeding 72h at 5°C	/	2,6	+
2017	VEC164	Cheese Neufchatel	ESC.1.75	<i>E coli O157 H7</i>	Clinic origin	seeding 72h at 5°C	/	2,6	+
2017	VEC165	Raw butter	ESC.1.75	<i>E coli O157 H7</i>	Clinic origin	seeding 72h at 5°C	/	2,6	+
2017	VEC166	Cheese Gruyère	ESC.1.106	<i>E coli O157 H7</i>	Faeces of beef	seeding 72h at 5°C	/	1,4	+

Year	Code	Product	Strain			Stress	Intensity of the stress	CFU/test portion	Global result
			N°	Name	Origin				
2017	VEC170	Cheese Cantal	ESC.1.136	<i>E coli O157 H7</i>	Raw milk	seeding 72h at 5°C	/	3.0	+
2017	VEC171	Raw milk	ESC.1.75	<i>E coli O157 H7</i>	Clinic origin	seeding 72h at 5°C	/	2.6	+
2017	VEC172	Raw milk	ESC.1.98	<i>E coli O157 H7</i>	Apple cider	seeding 72h at 5°C	/	1,4	+
2017	VEC173	Raw milk	ESC.1.136	<i>E coli O157 H7</i>	Raw milk	seeding 72h at 5°C	/	3.0	+
2017	VEC78	Cheese coulommier	ESC.1.97	<i>E coli O157 H7</i>	Beef	seeding 72h at 5°C	/	2.6	+
2017	VEC79	Cheese Gruyère	ESC.1.97	<i>E coli O157 H7</i>	Beef	seeding 72h at 5°C	/	2.6	+
2017	VEC80	Cheese saint félicien	ESC.1.104	<i>E coli O157 H7</i>	Steak	seeding 72h at 5°C	/	1.8	+
2017	VEC83	Cheese	ESC.1.135	<i>E coli O157 H7</i>	Raw milk	seeding 72h at 5°C	/	2.4	+
2017	VEC75	Goat cheese	ESC.1.94	<i>E coli O157 H7</i>	Clinic origin	seeding 72h at 5°C	/	2.2	+
2017	VEC180	Goat cheese	ESC.1.135	<i>E coli O157 H7</i>	Raw milk	seeding 72h at 5°C	/	2.2	+
2017	VEC182	Goat cheese	ESC.1.106	<i>E coli O157 H7</i>	Faeces of beef	seeding 72h at 5°C	/	1.8	+
2017	VEC184	Goat cheese	ESC.1.109	<i>E coli O157 H7</i>	Ground beef	seeding 72h at 5°C	/	2.1	+
2017	VEC186	Goat cheese	ESC.1.110	<i>E coli O157 H7</i>	Ground beef	seeding 72h at 5°C	/	1.8	+
2017	VEC195	Raw milk	ESC.1.135	<i>E coli O157 H7</i>	Raw milk	seeding 72h at 5°C	/	2.0	+
2017	VEC196	Raw milk	ESC.1.106	<i>E coli O157 H7</i>	Faeces of beef	seeding 72h at 5°C	/	1.8	+
2017	VEC199	Raw milk	ESC.1.1036	<i>E coli O157 H7</i>	Raw milk	seeding 72h at 5°C	/	2.0	+

Environmental samples – Protocol 6

Year	Code	Product	Strain			Stress	Intensity of the stress	CFU/test portion	Global result
			N°	Name	Origin				
2009	AL1	Residue stand catering	EC82	<i>E coli O157 H7</i>	Beef	48 h at 4°Cand 15 min at - 80°C	0,4	3,2	+
2009	AL2	Residue stand cheese	EC82	<i>E coli O157 H7</i>	Beef	48 h at 4°Cand 15 min at - 80°C	0,4	4	+
2009	AL3	Residue caterer	EC82	<i>E coli O157 H7</i>	Beef	48 h at 4°Cand 15 min at - 80°C	0,4	4,8	+
2009	AL4	Residue slaughterhouse	EC82	<i>E coli O157 H7</i>	Beef	48 h at 4°Cand 15 min at - 80°C	0,4	5,6	+
2009	AL5	Residue stand delicatessen	EC83	<i>E coli O157 H7</i>	Cider	48 h at 4°Cand 15 min at - 80°C	0,4	2,9	+
2009	AL6	Residue caterer	EC83	<i>E coli O157 H7</i>	Cider	48 h at 4°Cand 15 min at - 80°C	0,4	3,6	+
2009	AL7	Residue stand delicatessen	EC83	<i>E coli O157 H7</i>	Cider	48 h at 4°Cand 15 min at - 80°C	0,4	4,3	+
2009	AL8	Residue stand cheese	EC83	<i>E coli O157 H7</i>	Cider	48 h at 4°Cand 15 min at - 80°C	0,4	5	+
2009	AL9	Surface cutting board	EC84	<i>E coli O157 H7</i>	CIP105228	48 h at 4°Cand 15 min at - 80°C	>1	<1	-
2009	AL10	Slaughterhouse work plan	EC84	<i>E coli O157 H7</i>	CIP105228	48 h at 4°Cand 15 min at - 80°C	>1	<1	-
2009	AL11	Kitchen table	EC84	<i>E coli O157 H7</i>	CIP105228	48 h at 4°Cand 15 min at - 80°C	>1	<1	-
2009	AL12	Internal whole refrigerator	EC84	<i>E coli O157 H7</i>	CIP105228	48 h at 4°Cand 15 min at - 80°C	>1	<1	-
2009	AM1	Tap water	EC52	<i>E coli O157 H7</i>	Clinic origin	48 h at 4°Cand 15 min at - 80°C	1,2	2,6	-
2009	AM2	Tap water	EC52	<i>E coli O157 H7</i>	Clinic origin	48 h at 4°Cand 15 min at - 80°C	1,2	3,3	+
2009	AM3	Ice-cold water	EC52	<i>E coli O157 H7</i>	Clinic origin	48 h at 4°Cand 15 min at - 80°C	1,2	4	+
2009	AM4	Process water	EC63	<i>E coli O157 H7</i>	Collection	48 h at 4°Cand 15 min at - 80°C	1,7	3,2	+
2009	AM5	Ice-cold water	EC63	<i>E coli O157 H7</i>	Collection	48 h at 4°Cand 15 min at - 80°C	1,7	4,05	+
2009	AM6	Ice-cold water	EC63	<i>E coli O157 H7</i>	Collection	48 h at 4°Cand 15 min at - 80°C	1,7	2,86	+
2009	AM7	Rinse water vegetables	EC67	<i>E.coli O157 H7-</i>	Collection	48 h at 4°Cand 15 min at - 80°C	1,4	4,8	+
2009	AM8	Contour sink	EC67	<i>E.coli O157 H7-</i>	Collection	48 h at 4°Cand 15 min at - 80°C	1,4	6	-
2009	AM10	Backwater	EC67	<i>E.coli O157 H7-</i>	Collection	48 h at 4°Cand 15 min at - 80°C	1,4	8,4	-
2009	AN1	Residue delicatessen	EC75	<i>E coli O157 H7</i>	Clinic origin	48 h at 4°Cand 15 min at - 80°C	1,0	6,5	+
2009	AN16	Contour sink	EC76	<i>E coli O157 H7</i>	Clinic origin	48 h at 4°Cand 15 min at - 80°C	0,5	10,5	+
2009	AN17	Tiled wall worktop	EC77	<i>E coli O157 H7</i>	Clinic origin	48 h at 4°Cand 15 min at - 80°C	0,8	5	-
2009	AN18	Trash lid	EC77	<i>E coli O157 H7</i>	Clinic origin	48 h at 4°Cand 15 min at - 80°C	0,8	6	+
2009	AO1	Trash lid	EC79	<i>E coli O157 H7</i>	Clinic origin	48 h at 4°Cand 15 min at - 80°C	0,4	6	+
2009	AO2	Table production plant before washing	EC79	<i>E coli O157 H7</i>	Clinic origin	48 h at 4°Cand 15 min at - 80°C	0,4	7,2	+
2009	AO7	Blade knife before washing	EC80	<i>E coli O157 H7</i>	Ground beef	48 h at 4°Cand 15 min at - 80°C	0,4	11,2	+
2009	AO12	Left wall white area workshop	EC80	<i>E coli O157 H7</i>	Ground beef	48 h at 4°Cand 15 min at - 80°C	0,4	6,4	+
2017	VEC48	Process water : vegetables cleanig water	ESC.1.101	<i>E coli O157 H7</i>	Slaughterhouse	seeding 72h at 5°C	/	1,6	+
2017	VEC54	Swab 1	ESC.1.129	<i>E coli O157 H7</i>	Ground beef	seeding 72h at 5°C	/	2,6	-
2017	VEC55	Sponge 1	ESC.1.129	<i>E coli O157 H7</i>	Ground beef	seeding 72h at 5°C	/	2,6	-
2017	VEC113	Swab 2	ESC.1.129	<i>E coli O157 H7</i>	Ground beef	seeding 72h at 5°C	/	4,2	+
2017	VEC149	Swab : table	ESC.1.100	<i>E coli O157 H7</i>	ATCC 35150 (human faeces)	seeding 72h at 5°C	/	2,2	+
2017	VEC150	Swab : fridge	ESC.1.100	<i>E coli O157 H7</i>	ATCC 35150 (human faeces)	seeding 72h at 5°C	/	2,2	+
2017	VEC151	Residue cutting table	ESC.1.100	<i>E coli O157 H7</i>	ATCC 35150 (human faeces)	seeding 72h at 5°C	/	2,2	+
2017	VEC152	Process water : fish preparation	ESC.1.100	<i>E coli O157 H7</i>	ATCC 35150 (human faeces)	seeding 72h at 5°C	/	2,2	+

Year	Code	Product	Strain			Stress	Intensity of the stress	CFU/test portion	Global result
			N°	Name	Origin				
2017	VEC153	Swab : cutting table	ESC.1.100	<i>E coli O157 H7</i>	ATCC 35150 (human faeces)	seeding 72h at 5°C	/	2,2	+
2017	VEC154	Swab : worktop, cold preparation	ESC.1.100	<i>E coli O157 H7</i>	ATCC 35150 (human faeces)	seeding 72h at 5°C	/	2,2	+
2017	VEC155	Swab : worktop, hot preparation	ESC.1.129	<i>E coli O157 H7</i>	Ground beef	seeding 72h at 5°C	/	2,6	+

* : some information on artificial contaminations which led to a negative result was not provided

APPENDIX 4

SENSITIVITY STUDY : RAW DATA (ISHA)

Caption:

sp : spiking
se : seeding
nc : naturally contaminated
+ / Pos : positive result
- / Neg : negative result
/ : test not realized
PA : positive agreement
NA : negative agreement
PD : positive deviation
ND : negative deviation
PP : presumed positive result before confirmation
Neg : absence
Pos : presence

RAW MEAT PRODUCTS

Study	Protocol	Code	Type	Produit	Product	Artificial conta.		ISO 16654	VIDAS ECPT														
						Type	Level		Minimum incubation time				Maximum incubation time				Storage of the broth						
									TV	DI	ICE	Final result		Agreement		TV	DI	ICE	Final result		Agreement		
											DI	ICE	DI	ICE	TV	DI	ICE	Final result	Agreement	TV	Final result	Agreement	
2009	1	AR20	1	Steak haché de bœuf	Ground beef	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/
2014	1	EC6	1	Steak haché pur bœuf surgelé 1	Frozen ground beef	/	/	-	0,00	-	-	-	-	NA	NA	/	/	/	/	/	/	/	/
2014	1	EC21	1	Viande hachée 20% MG	Frozen ground beef (20% fat)	/	/	-	0,00	-	-	-	-	NA	NA	/	/	/	/	/	/	/	/
2014	1	EC22	1	Steak haché 5% MG	Frozen ground beef (5% fat)	/	/	-	0,00	-	-	-	-	NA	NA	/	/	/	/	/	/	/	/
2014	1	EC23	1	Minerai de viande congelé	Frozen beef trims	/	/	-	0,00	-	-	-	-	NA	NA	/	/	/	/	/	/	/	/
2014	1	EC38	1	Steak haché pur bœuf 15%MG frais	Ground beef (15% fat)	/	/	-	0,00	-	-	-	-	NA	NA	/	/	/	/	/	/	/	/
2014	1	EC40	1	Viande bovine macreuse à bourguignon frais	Meat for bourguignon	/	/	-	0,00	-	-	-	-	NA	NA	/	/	/	/	/	/	/	/
2014	1	EC41	1	Steak haché pur bœuf 5%MG frais	Ground beef (5% fat)	/	/	-	0,00	-	-	-	-	NA	NA	/	/	/	/	/	/	/	/
2014	1	EC43	1	Tartare de bœuf MG<3%	Beef tartare < 3% fat	/	/	-	0,00	-	-	-	-	NA	NA	/	/	/	/	/	/	/	/
2014	1	EC48	1	Viande hachée pur bœuf 20% MG frais	Ground beef (15% fat)	/	/	-	0,00	-	-	-	-	NA	NA	/	/	/	/	/	/	/	/
2014	1	EC53	1	Steak haché pur bœuf 15%MG frais	Ground beef (15% fat)	se	0,7	-	0,00	-	-	-	-	NA	NA	/	/	/	/	/	/	/	/
2014	1	EC54	1	Viande bovine à bourguignon frais	Meat for bourguignon	se	0,0	-	0,00	-	-	-	-	NA	NA	/	/	/	/	/	/	/	/
2014	1	EC55	1	Steak haché pur bœuf 15%MG frais	Ground beef (15% fat)	/	/	-	0,00	-	-	-	-	NA	NA	/	/	/	/	/	/	/	/
2014	1	EC56	1	Tartare de bœuf façon brasserie MG<3%	Beef tartare < 3% fat	/	/	-	0,00	-	-	-	-	NA	NA	/	/	/	/	/	/	/	/
2014	1	EC58	1	Steak haché pur bœuf 5%MG frais	Ground beef (5% fat)	/	/	-	0,00	-	-	-	-	NA	NA	/	/	/	/	/	/	/	/
2014	1	EC59	1	Viande hachée pur bœuf 20% MG frais	Ground beef (20% fat)	/	/	-	0,00	-	-	-	-	NA	NA	/	/	/	/	/	/	/	/
2009	2	B5	1	Viande hachée de bœuf	Ground beef	sp	3,6	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/
2009	2	B6	1	Viande hachée de bœuf	Ground beef	sp	7,2	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/
2009	2	B7	1	Viande hachée de bœuf	Ground beef	sp	2,9	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/
2009	2	B8	1	Viande hachée de bœuf	Ground beef	sp	3,2	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/
2009	2	B9	1	Viande hachée de bœuf	Ground beef	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/
2009	2	B10	1	Viande hachée de bœuf	Ground beef	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/
2009	2	C9	1	Viande hachée de bœuf	Ground beef	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/
2009	2	C10	1	Viande hachée de bœuf	Ground beef	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/
2009	2	C11	1	Viande hachée de bœuf	Ground beef	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/
2009	2	C12	1	Viande hachée de bœuf	Ground beef	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/
2009	2	D9	1	Viande hachée de bœuf	Ground beef	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/
2009	2	D10	1	Viande hachée de bœuf	Ground beef	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/
2009	2	D11	1	Viande pour sauté de veau	Raw veal	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/
2009	2	D12	1	Steak haché de veau	Ground veal	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/
2009	2	F9	1	Viande hachée de bœuf (surg. 20%MG)	Frozen ground beef (<20% fat)	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/
2009	2	F10	1	Viande hachée de bœuf (surg. steak)	Frozen ground beef	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/
2009	2	F11	1	Viande hachée de bœuf (surg. steak)	Frozen ground beef	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/
2009	2	F12	1	Viande hachée de bœuf (surg. steak)	Frozen ground beef	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/
2009	2	I5	1	Viande de veau haché (surg. 10%MG)	Frozen ground veal (<10% fat)	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/
2009	2	I6	1	Viande de veau haché (surg. 10%MG)	Frozen ground veal (<10% fat)	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/
2009	2	I7	1	Viande de veau haché (surg. 10%MG)	Frozen ground veal (<10% fat)	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/
2009	2	I8	1	Viande de veau haché (surg. 10%MG)	Frozen ground veal (<10% fat)	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/
2009	2	I9	1	Steak haché de veau	Frozen ground veal	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/
2009	2	I10	1	Steak haché de veau	Frozen ground veal	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/
2009	2	I11	1	Steak haché de veau	Frozen ground veal	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/
2009	2	I12	1	Steak haché de veau	Frozen ground veal (<10% fat)	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/
2009	2	K6	1	Viande hachée de bœuf (surg. <15%MG)	Frozen ground veal (<10% fat)	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/
2009	2	K7	1	Viande hachée de bœuf (surg. <15%MG)	Frozen ground veal (<10% fat)	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/
2009	2	K8	1	Viande hachée de bœuf (surg. <15%MG)	Frozen ground veal (<10% fat)	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/
2009	2	K9	1	Viande hachée de bœuf (surg. <15%MG)	Frozen ground veal (<10% fat)	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/
2009	2	K6	1	Viande hachée de bœuf (surg. <15%MG)	Frozen ground veal (<10% fat)	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/
2009	3	A5	1	Viande hachée de bœuf	Ground beef	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/
2009	3	A6	1	Viande hachée de bœuf	Ground beef	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/
2009	3	A7	1	Viande hachée de bœuf	Ground beef	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/
2009	3	E5	1	Viande hachée de bœuf (surg. <15%MG)	Frozen ground beef (<15% fat)	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/
2009	3	E6	1	Viande hachée de bœuf (surg. <15%MG)	Frozen ground beef (<15% fat)	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/
2009	3	E7	1	Viande hachée de bœuf (surg. <15%MG)	Frozen ground beef (<15% fat)	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/
2009	3	G5	1	Viande hachée de bœuf	Ground beef	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/
2009	3	G6	1	Viande hachée de bœuf	Ground beef	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/
2009	3	G7	1	Viande hachée de bœuf	Ground beef	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/

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						Type	Level		Minimum incubation time						Maximum incubation time					Storage of the broth			
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2009	2	C8	1	Viande hachée de bœuf	Ground beef	sp	3,6	+	0,21	+	+	+	+	PA	PA	1,87	+	+	+	PA	2,35	+	PA
2009	2	F2	1	Viande hachée de bœuf (surg. <15%MG)	Frozen Ground beef (<15% fat)	sp	3,8	+	0,43	+	+	+	+	PA	PA	1,80	+	+	+	PA	1,75	+	PA
2009	2	F6	1	Viande hachée de bœuf (surg. <15%MG)	Frozen Ground beef (<15% fat)	sp	3,8	+	0,67	+	-	+	-	PA	ND(PP)	1,72	+	+	+	PA	1,76	+	PA
2009	2	I1	1	Viande de veau haché (surg. 10%MG)	Ground veal (10% fat)	sp	3,8	+	0,32	+	+	+	+	PA	PA	1,61	+	+	+	PA	1,95	+	PA
2009	2	B2	1	Viande hachée de bœuf	Ground meat of beef	sp	4,0	+	0,78	+	+	+	+	PA	PA	2,28	+	+	+	PA	2,11	+	PA
2009	2	D6	1	Viande hachée Halal	Minced meat Halal	sp	4,4	+	1,02	+	+	+	+	PA	PA	2,13	+	+	+	PA	2,80	+	PA
2009	2	F7	1	Viande hachée de bœuf (surg. 20%MG)	Ground beef (20% fat)	sp	5,7	+	0,54	+	+	+	+	PA	PA	1,63	+	+	+	PA	1,69	+	PA
2009	2	F8	1	Viande hachée de bœuf (surg. 20%MG)	Ground beef (20% fat)	sp	7,6	+	0,63	+	+	+	+	PA	PA	1,59	+	+	+	PA	1,65	+	PA
2009	2	B4	1	Viande hachée de bœuf	Ground beef	sp	8,0	+	0,06	-	-	-	-	ND (PP)	ND (PP)	0,18	-	-	-	ND	0,15	+	PA
2009	2	O4	1	Escalope de veau	Veal cutlet	sp	8,1	+	0,29	+	+	+	+	PA	PA	1,39	+	+	+	PA	1,94	+	PA
2017	2	VEC 11	1	Minced meat (raw)	Ground beef (raw)	se	1,8	+	0,09	+	+	+	+	PA	PA	1,76	+	+	+	PA	1,75	+	PA
2017	2	VEC 12	1	Veal stuffing (raw)	Veal stuffing (raw)	se	1,4	+	0,67	+	+	+	+	PA	PA	1,75	+	+	+	PA	1,76	+	PA
2009	3	N1	1	Rumsteak	Rumsteak	sp	1,0	+	1,35	+	+	+	+	PA	PA	2,22	+	+	+	PA	2,20	+	PA
2009	3	N2	1	Pavé de bœuf	Steak	sp	1,3	+	1,51	+	+	+	+	PA	PA	2,27	+	+	+	PA	2,24	+	PA
2009	3	N3	1	Viande hachée de bœuf	Ground beef	sp	1,7	+	1,59	+	+	+	+	PA	PA	2,27	+	+	+	PA	2,30	+	PA
2009	3	N5	1	Viande pour sauté de veau	Meat for veal sauté	sp	1,7	+	1,12	+	+	+	+	PA	PA	1,68	+	+	+	PA	1,75	+	PA
2009	3	N4	1	Viande hachée de bœuf	Ground meat of beef	sp	1,9	+	1,59	+	+	+	+	PA	PA	2,24	+	+	+	PA	2,14	+	PA
2009	3	N6	1	Steak haché de veau	Grilled veal steak	sp	1,9	+	0,78	+	+	+	+	PA	PA	2,09	+	+	+	PA	2,07	+	PA
2009	3	E4	1	Viande hachée de bœuf (surg. <15%MG)	Frozen Ground beef (<15% fat)	sp	2,1	+	2,70	+	+	+	+	PA	PA	2,77	+	+	+	PA	2,77	+	PA
2009	3	E1	1	Viande hachée de bœuf (surg. <15%MG)	Frozen Ground beef (<15% fat)	sp	3,5	+	1,82	+	+	+	+	PA	PA	2,71	+	+	+	PA	2,74	+	PA
2009	3	E2	1	Viande hachée de bœuf (surg. <15%MG)	Frozen Ground beef (<15% fat)	sp	4,2	+	2,35	+	+	+	+	PA	PA	2,31	+	+	+	PA	2,66	+	PA
2009	3	H1	1	Viande de veau haché (surg. 10%MG)	Ground veal (10% fat)	sp	4,5	+	1,40	+	+	+	+	PA	PA	1,52	+	+	+	PA	1,56	+	PA
2009	3	E3	1	Viande hachée de bœuf (surg. <15%MG)	Ground beef (surg <15% fat)	sp	4,9	+	0,00	-	-	-	-	ND	ND	0,00	-	-	-	ND	0,00	-	ND
2009	3	H2	1	Viande de veau haché (surg. 10%MG)	Ground veal (10% fat)	sp	6,0	+	1,02	+	+	+	+	PA	PA	1,47	+	+	+	PA	1,48	+	PA
2009	3	L1	1	Filet de bœuf	Beef fillet	sp	6,0	+	1,26	+	+	+	+	PA	PA	1,77	+	+	+	PA	1,87	+	PA
2009	3	J1	1	Escalope de veau hachée	Ground veal (10% fat)	sp	6,8	+	1,92	+	+	+	+	PA	PA	2,05	+	+	+	PA	1,90	+	PA
2009	3	H3	1	Viande de veau haché (surg. 10%MG)	Ground veal (10% MG)	sp	7,5	+	0,73	+	+	+	+	PA	PA	1,52	+	+	+	PA	1,53	+	PA
2009	3	L2	1	Pavé de bœuf	Steak	sp	7,5	+	1,24	+	+	+	+	PA	PA	1,86	+	+	+	PA	1,96	+	PA
2009	3	J2	1	Escalope de veau hachée	Ground veal	sp	8,5	+	1,98	+	+	+	+	PA	PA	1,94	+	+	+	PA	1,89	+	PA
2017	3	VEC 140	1	Turkey scallop	Turkey scallop	se	0,6	-	0,96	+	+	+	+	PD	PD	1,57	+	+	+	PD	1,51	+	PD
2017	3	VEC 142	1	Rump steak	Rump steak	se	0,6	-	0,17	+	+	+	+	PD	PD	1,98	+	+	+	PD	1,95	+	PD
2017	3	VEC 159	1	Minced meat (20% fat)	Minced meat (20% fat)	se	3,0	-	0,50	+	+	+	+	PD	PD	2,00	+	+	+	PD	1,94	+	PD
2017	3	VEC 160	1	Minced meat (15% fat)	Minced meat (15% fat)	se	2,0	-	0,77	+	+	+	+	PD	PD	1,80	+	+	+	PD	1,73	+	PD
2017	3	VEC 161	1	Minced meat (15% fat)	Minced meat (15% fat)	se	2,0	-	0,14	+	+	+	+	PD	PD	1,97	+	+	+	PD	1,93	+	PD
2017	3	VEC 143	1	Veal scallop	Veal scallop	se	2,4	+	0,00	-	-	-	-	ND	ND	0,00	-	-	-	ND	0,00	-	ND
2017	3	VEC 146	1	Osso bucco, veal	Osso bucco, veal	se	2,0	+	0,00	-	-	-	-	ND	ND	1,87	+	+	+	PA	1,95	+	PA
2017	3	VEC 162	1	Minced meat (15% fat)	Minced meat (15% fat)	se	1,0	+	0,00	-	-	-	-	ND	ND	0,00	-	-	-	ND	0,00	-	ND
2017	3	VEC 144	1	Minced meat (15% fat)	Minced meat (15% fat)	se	3,0	+	1,32	+	+	+	+	PA	PA	1,89	+	+	+	PA	1,99	+	PA
2017	3	VEC 156	1	Minced meat (15% fat)	Minced meat (15% fat)	se	2,6	+	0,42	+	+	+	+	PA	PA	0,57	+	+	+	PA	0,56	+	PA
2017	3	VEC 157	1	Minced meat (15% fat)	Minced meat (15% fat)	se	2,6	+	0,02	+	+	+	+	ND	ND	1,98	+	+	+	PA	1,93	+	PA
2017	3	VEC 158	1	Minced meat (5% fat)	Minced meat (5% fat)	se	3,0	+	1,62	+	+	+	+	PA	PA	2,02	+	+	+	PA	1,98	+	PA
2017	3	VEC 163	1	Minced meat (15% fat)	Minced meat (15% fat)	se	1,0	+	0,22	+	+	+	+	PA	PA	1,98	+	+	+	PA	1,98	+	PA
2014	1	EC47	2	New burger 15% MG (prot. végétales)	New burger 15% MG (vegetable proteins)	/	/	-	0,00	-	-	-	-	NA	NA	/	/	/	/	/	/	/	/
2014	1	EC3	2	Steak haché à l'oignon surgelé	Frozen ground beef + onion	se	0,0	-	0,00	-	-	-	-	NA	NA	/	/	/	/	/	/	/	/
2014	1	EC4	2	Boulettes au bœuf surgelées	Frozen beef balls	se	0,0	-	0,00	-	-	-	-	NA	NA	/	/	/	/	/	/	/	/
2014	1	EC20	2	Viande hachée bolognaise 20% MG	Ground beef bolognese 20% fat	/	/	-	0,00	-	-	-	-	NA	NA	/	/	/	/	/	/	/	/
2014	1	EC24	2	Viande hachée à la tomate	Frozen beef + tomatoe	/	/	-	0,00	-	-	-	-	NA	NA	/	/	/	/	/	/	/	/
2014	1	EC37	2	Viande hachée bœuf à l'oignon frais	Frozen beef + onion	/	/	-	0,00	-	-	-	-	NA	NA	/	/	/	/	/	/	/	/
2014	1	EC39	2	Viande hachée super tendre 15% MG (prot. végétales)	Fresh ground beef + onion	/	/	-	0,00	-	-	-	-	NA	NA	/	/	/	/	/	/	/	/
2014	1	EC42	2	Brochettes Tex-Mex MG<20% (prot. végétales + épices)	Skewer Tex-Mex 20% fat (vegetable proteins/spices)	/	/	-	0,00	-	-	-	-	NA	NA	/	/	/	/	/	/	/	/
2014	1	EC44	2	Boulettes au bœuf bolognaise MG<20%	Beef balls bolognese <20% fat	/	/	-	0,00	-	-	-	-	NA	NA	/	/	/	/	/	/	/	/
2014	1	EC45	2	Boulettes au bœuf MG<20%	Beef balls bolognese <20% fat	/	/	-	0,00	-	-	-	-	NA	NA	/	/	/	/	/	/	/	/
2014	1	EC46	2	Préparation de viande hachée bolognaise (prot. végétales)	Ground beef bolognese (vegetable proteins)	/	/	-	0,00	-	-	-	-	NA	NA	/	/	/	/	/	/	/	/
2014	1	EC49	2	Viande hachée bœuf à la tomate MG<15% frais	Frozen beef 15% fat + tomatoe	/	/	-	0,00	-	-	-	-	NA	NA	/	/	/	/	/	/	/	/
2014	1	EC50	2	Carpaccio parmesan et olives	Carpaccio parmesan and olives	/	/	-	0,00	-	-	-	-	NA	NA	/	/	/	/	/	/	/	/
2014	1	EC51	2	Carpaccio bœuf mariné basilic	Beef marinated carpaccio + basil	/	/	-	0,00	-	-	-	-	NA	NA	/	/	/	/	/	/	/	/
2014	1	EC52	2	Boulettes au bœuf MG 20% frais	Beef balls 20% fat	se	0,3	-	0,00	-	-	-	-	NA	NA	/	/	/	/	/	/	/	/
2014	1	EC57	2	Carpaccio de bœuf parmesan	Beef carpaccio parmesan and olives	/	/	-	0,00	-	-	-	-	NA	NA	/	/	/	/	/	/	/	/
2014	1	EC60	2	Viande hachée bolognaise 20% MG	Ground beef bolognese 20% fat	/	/	-	0,00	-	-	-	-	NA	NA	/	/	/	/	/	/	/	/

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2014	1	EC61	2	Viande hachée de bœuf aux oignons MG<15%	Ground beef < 15% fat + onion	/	/	-	0,00	-	-	-	-	NA	NA	/	/	/	/	/	/	/	/	/	/
2014	1	EC62	2	Brochettes Tex-Mex	Skewered Tex-Mex	/	/	-	0,00	-	-	-	-	NA	NA	/	/	/	/	/	/	/	/	/	/
2009	1	AQ3	2	Bavette aloyau marinée à l'échalote	Sirloin undercut marinated with shallot	sp	3,4	+	2,48	+	+	+	+	PA	PA	2,57	+	+	+	+	PA	/	/	/	/
2014	1	EC27	2	Steak haché bœuf 15% MG (prot. végétales)	Ground beef 15% fat (vegetable proteins)	sp	2,7	+	0,00	-	-	-	-	ND	ND	/	/	/	/	/	/	0,00	-	ND	ND
2014	1	EC25	2	Steak haché bœuf 20% MG à l'oignon	Steak minced beef 20% fat with onion	sp	2,7	+	2,24	+	+	+	+	PA	PA	/	/	/	/	/	/	2,19	+	PA	PA
2014	1	EC36	2	Boulettes de bœuf bolognaise	Beef balls bolognese	sp	1,0	+	2,19	+	+	+	+	PA	PA	/	/	/	/	/	/	2,18	+	PA	PA
2014	1	EC31	2	Haché de bœuf à l'oignon 15%MG surgelé	Frozen ground beef 15% fat with onion	sp	1,3	-	2,13	+	+	+	+	PD	PD	/	/	/	/	/	/	2,10	+	PD	PD
2014	1	EC29	2	Boulettes au bœuf (prot. végétales)	Frozen beef balls (vegetable proteins)	sp	2,0	+	2,23	+	+	+	+	PA	PA	/	/	/	/	/	/	2,13	+	PA	PA
2014	1	EC7	2	Steak haché à la tomate frais	Ground beef + tomatoe	sp	2,3	+	2,28	+	+	+	+	PA	PA	/	/	/	/	/	/	2,27	+	PA	PA
2014	1	EC8	2	Saucisse de veau fraîche	Veal sausage	sp	2,3	+	2,26	+	+	+	+	PA	PA	/	/	/	/	/	/	2,28	+	PA	PA
2014	1	EC16	2	Steak haché à l'oignon frais	Ground beef + onion	sp	2,3	+	2,27	-	+	-	+	ND(PP)	PA	/	/	/	/	/	/	2,21	+	PA	PA
2014	1	EC1	2	Steak haché à la tomate surgelé 1	Frozen ground beef + onion	sp	3,0	+	2,29	+	+	+	+	PA	PA	/	/	/	/	/	/	2,31	+	PA	PA
2014	1	EC63	2	Steak haché à l'oignon frais 15% MG	Ground beef 15% fat + onion	sp	3,0	+	2,21	+	+	+	+	PA	PA	/	/	/	/	/	/	2,30	+	PA	PA
2014	1	EC18	2	Carpaccio olives parmesan	Carpaccio parmesan and olives	sp	3,7	-	2,33	+	+	+	+	PD	PD	/	/	/	/	/	/	2,29	+	PD	PD
2014	1	EC65	2	Steak haché de boeuf à la tomate 15% MG	Ground beef 15% fat + tomatoe	sp	11,0	+	2,35	+	+	+	+	PA	PA	/	/	/	/	/	/	2,37	+	PA	PA
2014	1	EC19	2	Farce de veau congelée	Frozen stuffed veal	/	/	-	1,88	+	+	+	+	PD	PD	/	/	/	/	/	/	1,91	+	PD	PD
2017	1	VEC 3	2	Farce de veau	Stuffed veal	se	3,0	-	1,77	+	+	+	+	PD	PD	1,74	+	+	+	+	PD	1,73	+	PD	PD
2017	1	VEC 7	2	Carpaccio parmesan	Carpaccio parmesan	se	3,0	-	1,84	+	+	+	+	PD	PD	1,78	+	+	+	+	PD	1,71	+	PD	PD
2017	1	VEC 1	2	Tartare de bœuf avec sauce	Beef tartar + sauce	se	3,0	+	0,01	/	/	/	/	ND	ND	0,00	/	/	/	/	ND	0,00	-	ND	ND
2017	1	VEC 5	2	Boulette de veau	Veal balls	se	2,2	+	1,72	+	+	+	+	PA	PA	1,7	+	+	+	+	PA	1,73	+	PA	PA
2009	2	Y3	2	Boulettes bœuf paprika	Beef balls with paprika	sp	4,4	+	0,04	+	+	+	+	PA	PA	0,01	+	+	+	+	PA	0,44	+	PA	PA
2009	2	Y5	2	Boulettes provençales	Beef nballs "provençales"	sp	8,2	+	0,41	+	-	+	-	PA	ND(PP)	1,54	+	+	+	+	PA	2,01	+	PA	PA
2009	2	Y4	2	Viande hachée préparation culinaire	Ground beef culinary preparation	sp	8,8	+	1,52	+	-	+	-	PA	ND(PP)	1,68	+	+	+	+	PA	1,95	+	PA	PA
2017	2	VEC 8	2	Beef carpaccio , parmiggiano	Beef carpaccio , parmiggiano	se	1,8	+	0,13	+	+	+	+	PA	PA	1,79	+	+	+	+	PA	1,77	+	PA	PA
2017	2	VEC 9	2	Beef carpaccio , olive	Beef carpaccio , olive	se	1,8	+	0,30	+	+	+	+	PA	PA	1,50	+	+	+	+	PA	1,55	+	PA	PA
2017	2	VEC 10	2	Oriental beef balls	Oriental beef balls	se	1,8	+	0,84	+	+	+	+	PA	PA	1,75	+	+	+	+	PA	1,72	+	PA	PA
2009	1	AC6	3	Escalope de dinde	Turkey escalope	/	/	-	0,01	-	-	-	-	NA	NA	0,00	-	-	-	-	NA	/	/	/	/
2009	1	AC8	3	Steak de cheval	Horse steak	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	-	NA	/	/	/	/
2009	1	AE2	3	Travers de porc	Ribs	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	-	NA	/	/	/	/
2009	1	AE3	3	Chipolatas	chipolatas	/	/	-	0,01	-	-	-	-	NA	NA	0,00	-	-	-	-	NA	/	/	/	/
2009	1	AE4	3	Saucisse de Toulouse	Toulouse sausage	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	-	NA	/	/	/	/
2009	1	AE5	3	Merguez	Merguez	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	-	NA	/	/	/	/
2009	1	AF11	3	Chipolatas	Chipolatas	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	-	NA	/	/	/	/
2009	1	AF12	3	Chipolatas	Chipolatas	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	-	NA	/	/	/	/
2009	1	AB8	3	Aiguillette de poulet	Chicken breast	sp	1,4	-	2,11	+	+	+	+	PD	PD	2,04	+	+	+	+	PD	1,95	+	PD	PD
2009	1	AP5	3	Côtes de porc filet	Pork Ribs Fillet	sp	2,4	+	2,43	+	+	+	+	PA	PA	2,40	+	+	+	+	PA	/	/	/	/
2009	1	AP2	3	Filet mignon de porc	Pork filet mignon	sp	2,5	+	2,44	+	+	+	+	PA	PA	2,49	+	+	+	+	PA	/	/	/	/
2009	1	AQ5	3	Merguez bœuf-mouton	Merguez beef-sheep	sp	2,6	+	2,45	+	+	+	+	PA	PA	2,50	+	+	+	+	PA	/	/	/	/
2009	1	AP6	3	Côtes de porc échine	Pork chops	sp	3,0	+	2,53	+	+	+	+	PA	PA	2,46	+	+	+	+	PA	/	/	/	/
2009	1	AQ4	3	Emincé de porc sauce Toscane	Sliced pork with Tuscan sauce	sp	3,2	+	2,43	+	+	+	+	PA	PA	2,49	+	+	+	+	PA	/	/	/	/
2009	1	AQ8	3	Bavette aloyau cheval	Horse sirloin undercut	sp	3,4	+	2,21	+	+	+	+	PA	PA	2,10	+	+	+	+	PA	/	/	/	/
2009	1	AP1	3	Cuisse de dinde	Turkey leg	sp	3,6	+	0,00	-	-	-	-	ND	ND	0,00	-	-	-	-	ND	/	/	/	/
2009	1	AP4	3	Chair à saucisse pur porc	Pork sausage meat	sp	3,6	+	2,48	+	+	+	+	PA	PA	2,53	+	+	+	+	PA	/	/	/	/
2009	1	AP7	3	Pintade crue entière	Whole raw guinea fowl	sp	4,2	+	2,49	+	+	+	+	PA	PA	2,49	+	+	+	+	PA	/	/	/	/
2009	1	AP8	3	Rognons de porc	Pork kidneys	sp	4,8	+	0,00	-	-	-	-	ND	ND	0,01	-	-	-	-	ND	/	/	/	/
2009	1	AQ11	3	Magret de canard séché	Dried duck breast	sp	5,4	+	2,57	+	+	+	+	PA	PA	2,43	+	+	+	+	PA	/	/	/	/
2009	1	AD8	3	Lardons fumés	Smoked bacon	sp	6,0	+	0,11	-	+	-	+	ND(PP)	PA	0,12	+	+	+	+	PA	0,11	-	ND	ND
2009	1	AR1	3	Saucisses de dinde	Turkey Sausages	sp	6,1	+	2,56	+	+	+	+	PA	PA	2,53	+	+	+	+	PA	/	/	/	/
2009	1	AR3	3	Côtes d'agneau	Lamb chops	sp	7,9	+	0,00	+	+	+	+	PA	PA	0,12	+	+	+	+	PA	/	/	/	/
2009	1	AQ10	3	Escalope de dinde	Turkey escalope	sp	8,2	+	2,55	+	+	+	+	PA	PA	2,37	+	+	+	+	PA	/	/	/	/

Results excludé in 2021

Study	Protocol	Code	Type	Product	Artificial conta.		ISO 16654	VIDAS ECPT																
					Type	Level		Minimum incubation time					Maximum incubation time					Storage of the broth						
								TV	DI	ICE	Final result	Concordance	TV	DI	ICE	Final result	Concordance	TV	Final result	Concordance				
2009	1	AF4	1	Heart of rumsteak	sp	33,6	-	0,01	+	-	-	-	NA	0,04	+	+	+	+	+	PD	0,00	-	NA	NA
2009	1	AF8	3	Chicken wings	sp	41,5	+	0,18	-	+	+	+	PA	0,36	-	+	+	+	+	PA	0,17	-	ND	ND

RAW VEGETABLES

Study	Protocol	Code	Type	Produit	Product	Artificial conta.		ISO 16654	VIDAS ECPT																		
						Type	Level		Minimum incubation time (8h)						Maximum incubation time (24h)					8h + Storage of the broth			24h + Storage of the broth				
									TV	DI	ICE	Final result		Agreement		TV	DI	ICE	Final result	Agreement	TV	Final result	Agreement	TV	Final result	Agreement	
												DI	ICE	DI	ICE												
2009	4		Z9	1	Tomates cerises	Cherry tomato	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	4		W10	1	Haricots verts	Green beans	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	4			1	Tomates cerises	Cherry tomato	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	4			1	Concombre	Cucumber	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	4			1	Raisin noir	Red grape	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	4			1	Fraise	Strawberry	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	4			1	Kiwi	Kiwi	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	4			1	Melon d'eau	Watermelon	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	4			1	Pomme	Apple	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	4			1	Ananas	Ananas	/	/	-	0,00	-	-	-	FN	NA	NA	1,09	+	+	+	PD	0,12	+	PD	1,44	+	PD
2009	4			1	Melon	Melon	/	/	+	0,00	-	-	-	-	ND	ND	0,02	-	-	-	ND	0,01	-	ND	0,02	-	ND
2009	4			1	Poivron vert	Sweet green pepper	/	/	-	1,81	+	-	+	-	PD	NA(PP)	1,90	+	+	+	PD	1,76	+	PD	1,92	+	PD
2009	4			1	Poivron jaune	Sweet yellow pepper	/	/	+	0,96	+	+	+	+	PA	PA	1,88	+	+	+	PA	1,40	+	PA	1,88	+	PA
2009	4			1	Poivron rouge	Sweet red pepper	/	/	-	0,07	+	-	+	-	PD	NA(PP)	1,91	+	+	+	PD	0,06	+	PD	1,92	+	PD
2009	4			1	Aubergine	Eggplant	/	/	+	1,91	+	+	+	+	PA	PA	1,89	+	+	+	PA	1,94	+	PA	1,85	+	PA
2009	4			1	Poire	Pear	/	/	+	1,94	+	+	+	+	PA	PA	1,86	+	+	+	PA	1,89	+	PA	1,91	+	PA
2009	4			1	Tomates cerises	Cherry tomato	/	/	-	1,83	+	+	+	+	PD	PD	1,93	+	+	+	PD	1,85	+	PD	1,95	+	PD
2009	4			1	Jus d'orange	Orange juice	/	/	-	1,57	+	+	+	+	PD	PD	1,89	+	+	+	PD	1,90	+	PD	1,91	+	PD
2009	4			1	Courgette	Courgette (frozen)	/	/	-	1,77	+	+	+	+	PD	PD	1,90	+	+	+	PD	2,03	+	PD	1,98	+	PD
2009	4			1	Pomme Golden	Apple: golden	/	/	+	1,27	+	+	+	+	PA	PA	1,99	+	+	+	PA	1,97	+	PA	2,03	+	PA
2009	4			1	Poire William	Pear: William	/	/	+	1,73	+	+	+	+	PA	PA	1,94	+	+	+	PA	2,01	+	PA	1,98	+	PA
2009	4			1	Piment vert	Green pepper	/	/	+	1,88	+	+	+	+	PA	PA	1,97	+	+	+	PA	2,03	+	PA	1,99	+	PA
2009	4			1	Piment orange	Orange pepper	/	/	+	1,59	+	+	+	+	PA	PA	1,79	+	+	+	PA	1,81	+	PA	1,91	+	PA
2009	4			1	Pois gourmands	Peas	/	/	+	2,20	+	+	+	+	PA	PA	2,14	+	+	+	PA	/	/	PA	2,22	+	PA
2009	4			1	Haricots verts	Green beans	/	/	+	2,11	+	+	+	+	PA	PA	2,07	+	+	+	PA	/	/	PA	2,01	+	PA
2009	4			2	Brocolis	Broccoli	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	4			2	Brocolis	Broccoli	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	4			2	Pois gourmands	Peas	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	4			2	Brocolis	Broccoli	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	4			2	Mâche	Lamb's lettuce	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	4			2	Panaché de laitue	Salad	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	4			2	Brocolis	Broccoli	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	4			2	Mâche	Lamb's lettuce	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	4			2	Roquette	Rocket	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	4			2	Laitue iceberg	Salad	/	/	-	0,00	-	-	-	-	NA	NA	1,00	-	-	-	NA	/	/	/	/	/	/
2009	4			2	Salade scarole	Salad: scarole	/	/	-	0,00	-	-	-	-	NA	NA	2,00	-	-	-	NA	/	/	/	/	/	/
2009	4			2	Haricots verts(surgelés)	Green beans (frozen)	/	/	-	0,00	-	-	-	-	NA	NA	3,00	-	-	-	NA	/	/	/	/	/	/
2009	4			2	Mâche	Lamb's lettuce	/	/	-	0,00	+	+	FN	FN	NA	NA	1,78	+	+	+	PD	0,40	+	PD	1,77	+	PD
2009	4			2	Cœur de laitue	Lettuce	/	/	+	0,97	+	-	+	-	PA	ND(PP)	2,47	+	+	+	PA	/	/	/	/	/	/
2009	4			2	Mâche	Lamb's lettuce	/	/	+	0,48	-	-	-	-	ND(PP)	ND(PP)	2,42	+	+	+	PA	/	/	/	/	/	/
2009	4			2	Cœur de laitue	Lettuce	/	/	+	2,36	+	-	+	-	PA	ND(PP)	2,4	+	+	+	PA	/	/	/	/	/	/
2009	4			2	Mâche	Lamb's lettuce	/	/	+	2,26	+	+	+	+	PA	PA	2,09	+	+	+	PA	/	/	/	2,06	+	PA
2009	4			2	Brocolis	Broccoli	/	/	+	0,00	-	-	-	-	ND	ND	2,12	+	+	+	PA	/	/	/	2,01	+	PA
2009	4			2	Pois (surgelés)	Peas (frozen)	/	/	+	0,00	-	-	-	-	ND	ND	0,00	-	-	-	ND	0,00	-	ND	0,02	-	ND
2009	4			2	Epinard (surgelés)	Spinach (frozen)	/	/	+	1,58	+	+	+	+	PA	PA	1,89	+	+	+	PA	1,70	+	PA	1,88	+	PA
2009	4			3	Chou rouge	Red cabbage	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	4			3	Carottes râpées	Gratted carrot	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	4			3	Chou fleur	Cauliflower	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	4			3	Carottes râpées	Gratted carrot	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	4			3	Chou blanc émincé	sliced white cabbage	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	4			3	Crudités et betteraves rouges	Raw vegetables and red beets	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	4			3	Panaché de crudités	Mixed raw vegetables	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	4			3	Pousses de soja	Beansprouts	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	4			3	Chou rouge émincé	Sliced red cabbage	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/

Study	Protocol	Code	Type	Produit	Product	Artificial conta.		ISO 16654	VIDAS ECPT																		
						Type	Level		Minimum incubation time (8h)						Maximum incubation time (24h)					8h + Storage of the broth			24h + Storage of the broth				
									TV	DI	ICE	Final result		Agreement		TV	DI	ICE	Final result	Agreement	TV	Final result	Agreement	TV	Final result	Agreement	
												DI	ICE	DI	ICE												
2009	4		W8	3	Champignons	Mushrooms	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	4		W11	3	Pousses de soja	Beansprouts	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	4		W13	3	Chou rouge émincé	Sliced red cabbage	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	4		W15	3	Carottes râpées	Gratted carrot	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	4		X9	3	Chou blanc émincé	sliced white cabbage	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	4		Z10	3	Chou rouge émincé	Sliced red cabbage	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	4		Z11	3	Chou blanc émincé	sliced white cabbage	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	4		Z12	3	Champignons émincés	Sliced mushrooms	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	4		W3	3	Céleri râpé	grated celery	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2017	4	VEC	67	3	Radis	Radish	se	0.6	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2017	4	VEC	69	3	Blanc de poireau	White leeks	se	0.6	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	0,4	+	PD	1,75	+	PD
2017	4	VEC	104	3	Chicorée	Chicory	se	3.0	-	0,00	-	-	-	-	NA	NA	0,49	+	+	+	PD	/	/	/	/	/	/
2017	4	VEC	57	3	Carottes râpées	Gratted carrot	se	0.6	-	0,00	-	+	-	FN	NA	NA	1,91	+	+	+	PD	0,00	FN	NA	0,54	+	PD
2017	4	VEC	63	3	Betterave	Beetroot	se	0.6	-	0,00	+	-	FN	-	NA	NA	1,85	+	+	+	PD	0,17	+	PD	1,72	+	PD
2009	4		V6	3	Champignons	Mushrooms	sp	7,5	+	2,30	+	+	+	+	PA	PA	2,31	+	+	+	PA	/	/	/	2,22	+	PA
2017	4	VEC	64	3	Carottes	Baby carrot	se	0.6	-	0.18	+	+	+	+	PD	PD	1,75	+	+	+	PD	0,97	+	PD	1,80	+	PD
2017	4	VEC	71	3	Chicorée	Chicory	se	0.6	-	0.09	+	+	+	+	PD	PD	1,80	+	+	+	PD	1,59	+	PD	1,80	+	PD
2017	4	VEC	72	3	Céleri	Celery	se	0.6	+	0.09	+	+	+	+	PA	PA	1,81	+	+	+	PA	0,89	+	PA	1,80	+	PA
2017	4	VEC	73	3	Champignons	Mushrooms	se	0.6	+	0,00	-	-	-	-	ND	ND	0,00	-	-	-	ND	0,00	-	ND	0,00	-	ND
2017	4	VEC	101	3	Carottes râpées	Gratted carrot	se	3.0	+	1.88	+	+	+	+	PA	PA	1,86	+	+	+	PA	1,91	+	PA	1,87	+	PA
2017	4	VEC	103	3	Champignons	Mushrooms	se	3.0	+	0,00	-	-	-	-	ND	ND	0,00	-	-	-	ND	0,00	-	ND	0,00	-	ND
2017	4	VEC	108	3	Graine de lin	Linseed	se	2.8	+	0.19	+	+	+	+	PA	PA	1,82	+	+	+	PA	0,41	+	PA	1,79	+	PA
2017	4	VEC	147	3	Oignons (surgelés)	Onions (frozen)	se	2.4	-	0.13	+	+	+	+	PD	PD	1,88	+	+	+	PD	1,83	+	PD	1,99	+	PD
2017	4	VEC	178	3	Chicorée	Chicory	se	2.6	+	1.56	+	+	+	+	PA	PA	1,69	+	+	+	PA	1,82	+	PA	1,70	+	PA

RAW MILK AND RAW MILK DAIRY PRODUCTS

Study	Protocol	Code		Type	Sample	Artificial conta.		ISO 16654	VIDAS ECPT							
						Type	level		20h incubation times			Cold storage of the broth				
									TV	DI	ICE	Agreement		TV	Final result	Agreement
								DI		ICE						
2017	5	VEC	24	1	Goat cheese (raw milk)	/	/	-	0.01	-	-	NA	NA	/	/	/
2017	5	VEC	27	1	Cheese Pavé fermier (raw milk)	/	/	-	0.00	-	-	NA	NA	/	/	/
2017	5	VEC	36	1	Cheese Saint Maure de Touraine (raw milk)	/	/	-	0.00	-	-	NA	NA	/	/	/
2017	5	VEC	38	1	Cheese Sainte Maure de Touraine (raw milk)	/	/	-	0.00	-	-	NA	NA	/	/	/
2017	5	VEC	46	1	Cheese Le rondin (raw milk)	/	/	-	0.00	-	-	NA	NA	/	/	/
2017	5	VEC	74	1	Cheese Valencay (raw milk)	se	2.2	-	0.00	-	-	NA	NA	/	/	/
2017	5	VEC	76	1	Cheese of goat La croseta (raw milk)	se	1.2	-	0.00	-	-	NA	NA	/	/	/
2017	5	VEC	82	1	Cheese of goat (raw milk)	se	2.4	-	0.00	-	-	NA	NA	/	/	/
2017	5	VEC	84	1	Cheese Briquette (raw milk)	/	/	-	0.00	-	-	NA	NA	/	/	/
2017	5	VEC	88	1	Cheese Cabécou (raw milk)	/	/	-	0.00	-	-	NA	NA	/	/	/
2017	5	VEC	131	1	Cheese of goat Capri de Touraine (raw milk)	se	2.6	-	0.00	-	-	NA	NA	/	/	/
2017	5	VEC	115	1	Cheese Briquette (raw milk)	se	4.2	-	0.00	-	-	NA	NA	/	/	/
2017	5	VEC	132	1	Cheese of goat Selles sur cher (raw milk)	se	2.6	-	0.00	-	-	NA	NA	/	/	/
2017	5	VEC	75	1	Cheese of goat (raw milk)	se	2.2	+	0.00	-	-	ND	ND	0,01	-	ND
2017	5	VEC	114	1	Cheese Roquefort (raw milk)	se	4.2	-	1.93	+	+	PD	PD	1,92	+	PD
2017	5	VEC	119	1	Cheese Cabécou (raw milk)	se	2.8	+	0.00	-	-	ND	ND	0,00	-	ND
2017	5	VEC	127	1	Goat cheese (raw milk)	se	2.8	-	1.85	+	+	PD	PD	1,92	+	PD
2017	5	VEC	180	1	Cheese of goat (raw milk)	se	2.2	+	0.39	+	+	PA	PA	0,42	+	PA
2017	5	VEC	182	1	Cheese of ewe (raw milk)	se	1.8	+	0.99	+	+	PA	PA	1,02	+	PA
2017	5	VEC	184	1	Cheese of goat (raw milk)	se	2.1	+	0.02	-	-	ND	ND	0,01	-	ND
2017	5	VEC	186	1	Cheese of ewe (raw milk)	se	1.8	+	0.00	-	-	ND	ND	0,00	-	ND
2017	5	VEC	181	2	Butter (raw milk)	/	/	-	0.00	-	-	NA	NA	/	/	/
2017	5	VEC	183	2	Butter (raw milk)	/	/	-	0.00	-	-	NA	NA	/	/	/
2017	5	VEC	185	2	Raw milk	/	/	-	0.00	-	-	NA	NA	/	/	/
2017	5	VEC	187	2	Raw milk	/	/	-	0.00	-	-	NA	NA	/	/	/
2017	5	VEC	188	2	Raw milk	/	/	-	0.00	-	-	NA	NA	/	/	/
2017	5	VEC	189	2	Raw milk	/	/	-	0.00	-	-	NA	NA	/	/	/
2017	5	VEC	190	2	Raw milk	/	/	-	0.00	-	-	NA	NA	/	/	/
2017	5	VEC	191	2	Raw milk	/	/	-	0.00	-	-	NA	NA	/	/	/
2017	5	VEC	192	2	Raw milk	/	/	-	0.00	-	-	NA	NA	/	/	/
2017	5	VEC	193	2	Raw milk	/	/	-	0.00	-	-	NA	NA	/	/	/
2017	5	VEC	194	2	Raw milk	/	/	-	0.00	-	-	NA	NA	/	/	/
2017	5	VEC	195	2	Raw milk	se	2.0	+	1.97	+	+	PA	PA	1,99	+	PA
2017	5	VEC	196	2	Raw milk	se	1.8	+	1.96	+	+	PA	PA	1,97	+	PA
2017	5	VEC	199	2	Raw milk	se	2.0	+	1.98	+	+	PA	PA	1,97	+	PA
2017	5	VEC	126	2	Raw butter	se	2.8	+	1.87	+	+	PA	PA	1,89	+	PA
2017	5	VEC	137	2	Raw milk	se	1.8	+	0.00	-	-	ND	ND	0,00	-	ND
2017	5	VEC	138	2	Raw milk	se	3.2	+	0.18	+	+	PA	PA	0,19	+	PA
2017	5	VEC	139	2	Raw milk	se	2.6	+	0.00	-	-	ND	ND	0,00	-	ND
2017	5	VEC	165	2	Raw butter	se	2.6	-	1.72	+	+	PD	PD	1,76	+	PD
2017	5	VEC	171	2	Raw milk	se	2.6	+	1.33	+	+	PA	PA	1,45	+	PA
2017	5	VEC	172	2	Raw milk	se	1.4	+	1.64	+	+	PA	PA	1,66	+	PA
2017	5	VEC	173	2	Raw milk	se	3.0	+	1.36	+	+	PA	PA	1,36	+	PA
2017	5	VEC	25	3	Cheese Cœur de joux (raw milk)	/	/	-	0.00	-	-	NA	NA	/	/	/
2017	5	VEC	26	3	Cheese Saint Nectaire (raw milk)	/	/	-	0.00	-	-	NA	NA	/	/	/
2017	5	VEC	28	3	Cheese Camembert (raw milk)	/	/	-	0.00	-	-	NA	NA	/	/	/
2017	5	VEC	29	3	Cheese Neufchatel (raw milk)	/	/	-	0.00	-	-	NA	NA	/	/	/
2017	5	VEC	30	3	Chhese Morbier (raw milk)	/	/	-	0.00	-	-	NA	NA	/	/	/
2017	5	VEC	31	3	Cheese Tomme de Reinach (raw milk)	/	/	-	0.29	-	-	NA(PP)	NA(PP)	/	/	/
2017	5	VEC	32	3	Chhese Gruyère (raw milk)	/	/	-	0.00	-	-	NA	NA	/	/	/
2017	5	VEC	33	3	Cheese Saint Marcelin (raw milk)	/	/	-	0.00	-	-	NA	NA	/	/	/
2017	5	VEC	34	3	Cheese (raw milk)	/	/	-	0.00	-	-	NA	NA	/	/	/
2017	5	VEC	35	3	Cheese Coulommiers sur paille (raw milk)	/	/	-	0.00	-	-	NA	NA	/	/	/
2017	5	VEC	37	3	Cheese Coulommiers sur paille (raw milk)	/	/	-	0.00	-	-	NA	NA	/	/	/
2017	5	VEC	39	3	Cheese Mont d'Or	/	/	-	0.00	-	-	NA	NA	/	/	/

Study	Protocol	Code		Type	Sample	Artificial conta.		ISO 16654	VIDAS ECPT								
						Type	level		20h incubation times				Cold storage of the broth				
									TV	DI	ICE	Agreement		TV	Final result	Agreement	
2017	5	VEC	40	3	Cheese Boulette d'avesnes (raw milk)	/	/	-	0.00	-	-	NA	NA	/	/	/	
2017	5	VEC	41	3	Cheese briquette fermière (raw milk)	/	/	-	0.00	-	-	NA	NA	/	/	/	
2017	5	VEC	42	3	Cheese Langres (raw milk)	/	/	-	0.00	-	-	NA	NA	/	/	/	
2017	5	VEC	43	3	Cheese de killem (raw milk)	/	/	-	0.00	-	-	NA	NA	/	/	/	
2017	5	VEC	44	3	Cheese Saint Simeon (raw milk)	/	/	-	0.05	-	-	NA(PP)	NA(PP)	/	/	/	
2017	5	VEC	45	3	Cheese (raw milk)	/	/	-	0.00	-	-	NA	NA	/	/	/	
2017	5	VEC	81	3	Cheese Morbier (raw milk)	se	1.8	-	0.00	-	-	NA	NA	/	/	/	
2017	5	VEC	85	3	Cheese Tomme (raw milk)	/	/	-	0.00	-	-	NA	NA	/	/	/	
2017	5	VEC	86	3	Cheese Comté (raw milk)	/	/	-	0.01	-	-	NA	NA	/	/	/	
2017	5	VEC	87	3	Cheese T'chiot biloute (raw milk)	/	/	-	0.00	-	-	NA	NA	/	/	/	
2017	5	VEC	89	3	Cheese Meule de savoie (raw milk)	/	/	-	0.00	-	-	NA	NA	/	/	/	
2017	5	VEC	90	3	Cheese Comté (raw milk)	/	/	-	0.00	-	-	NA	NA	/	/	/	
2017	5	VEC	91	3	Cheese Petit cammenbert (raw milk)	/	/	-	0.00	-	-	NA	NA	/	/	/	
2017	5	VEC	92	3	Cheese Boulette d'avesnes (raw milk)	/	/	-	0.02	-	-	NA	NA	/	/	/	
2017	5	VEC	93	3	Cheese Cœur de bray (raw milk)	/	/	-	0.00	-	-	NA	NA	/	/	/	
2017	5	VEC	130	3	Cheese Brie (raw milk)	se	2.6	-	0.00	-	-	NA	NA	/	/	/	
2017	5	VEC	133	3	Cheese Camembert (raw milk)	se	2.6	-	0.00	-	-	NA	NA	/	/	/	
2017	5	VEC	134	3	Cheese Parmigiano (raw milk)	se	1.8	-	0.00	-	-	NA	NA	/	/	/	
2017	5	VEC	167	3	Cheese Comte (raw milk)	se	1.4	-	0.00	-	-	NA	NA	/	/	/	
2017	5	VEC	168	3	Cheese Le petit camembert (raw milk)	se	3.0	-	0.00	-	-	NA	NA	/	/	/	
2017	5	VEC	169	3	Cheese Petit reblochon (raw milk)	se	3.0	-	0.00	-	-	NA	NA	/	/	/	
2017	5	VEC	118	3	Cheese T'chiot biloute (raw milk)	se	2.8	-	0.00	-	-	NA	NA	/	/	/	
2017	5	VEC	120	3	Cheese Meule de savoie (raw milk)	se	2.8	-	0.00	-	-	NA	NA	/	/	/	
2017	5	VEC	121	3	Cheese Morbier (raw milk)	se	2.8	-	0.00	-	-	NA	NA	/	/	/	
2017	5	VEC	77	3	Cheese camembert (raw milk)	se	1.2	+	0.29	+	+	PA	PA	0,22	+	PA	
2017	5	VEC	78	3	Cheese Coulommier (raw milk)	se	2.6	+	0.20	+	+	PA	PA	0,24	+	PA	
2017	5	VEC	79	3	Cheese Gruyère (raw milk)	se	2.6	-	1.77	+	+	PD	PD	1,84	+	PD	
2017	5	VEC	80	3	Cheese Saint Felicien (raw milk)	se	1.8	-	1.77	+	+	PD	PD	1,61	+	PD	
2017	5	VEC	83	3	Cheese (raw milk)	se	2.4	-	0.16	+	+	PD	PD	0,21	+	PD	
2017	5	VEC	116	3	Cheese tomme (raw milk)	se	4.2	-	0.05	+	+	PD	PD	0,02	-	NA	
2017	5	VEC	117	3	Cheese Comté (raw milk)	se	4.2	+	1.93	+	+	PA	PA	1,94	+	PA	
2017	5	VEC	122	3	Cheese Abondance (raw milk)	se	3.2	+	1.83	+	+	PA	PA	1,88	+	PA	
2017	5	VEC	123	3	Cheese (raw milk)	se	3.2	-	1.84	+	+	PD	PD	1,87	+	PD	
2017	5	VEC	124	3	Cheese Morbier (raw milk)	se	3.2	-	0.30	+	+	PD	PD	1,02	+	PD	
2017	5	VEC	125	3	Cheese Petit camembert (raw milk)	se	3.2	+	0.09	+	+	PA	PA	0,49	+	PA	
2017	5	VEC	128	3	Cheese Boulette d'avesnes (raw milk)	se	2.8	+	1.90	+	+	PA	PA	1,87	+	PA	
2017	5	VEC	129	3	Cheese Cœur de bray (raw milk)	se	2.8	-	1.74	+	+	PD	PD	1,93	+	PD	
2017	5	VEC	135	3	Cheese Comté (raw milk)	se	1.8	-	1.97	+	+	PD	PD	1,98	+	PD	
2017	5	VEC	136	3	Cheese (raw milk)	se	1.8	+	0.00	-	-	ND	ND	0,01	-	ND	
2017	5	VEC	164	3	Cheese Neufchatel (raw milk)	se	2.6	+	0.00	-	-	ND	ND	0,00	-	ND	
2017	5	VEC	166	3	Cheese Le Gruyere (raw milk)	se	1.4	+	1.96	+	+	PA	PA	1,96	+	PA	
2017	5	VEC	170	3	Cheese Cantal (raw milk)	se	3.0	+	2.03	+	+	PA	PA	20,30	+	PA	

ENVIRONMENTAL SAMPLES

Study	Protocol	Code	Type	Product (french name)	Product	Artificial conta.		ISO 16654	VIDAS ECPT																	
									15h incubation time						24h incubation time					15h + Storage of the broth			24h + Storage of the broth			
									TV	DI	ICE	Final result		Agreement		TV	DI	ICE	Final result	Agreement	TV	Final result	Agreement	TV	Final result	Agreement
						DI	ICE					DI	ICE													
Type	Level																									
2009	6	AM1	1	Eau de réseau	Network water	sp	2,6	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	6	AM8	1	Eau siphon	Siphon water	sp	6	-	0,01	-	-	-	-	NA	NA	0,01	-	-	-	NA	/	/	/	/	/	/
2009	6	AM10	1	Eau stagnante	Backwater	sp	8,4	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	6	AM11	1	Eau de réseau	Network water	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	6	AM12	1	Eau de réseau	Network water	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	6	AM13	1	Eau glacée	Frozen water	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	6	AM14	1	Eau de process	Process water	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	6	AM15	1	Eau glacée	Frozen water	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	6	AM16	1	Eau glacée	Frozen water	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	6	AM17	1	Eau de rinçage légumes	Rinsing water vegetables	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	6	AM18	1	Eau siphon	Siphon water	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	6	AM19	1	Eau récupérateur	Reclaimed water	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	6	AM20	1	Eau stagnante	Backwater	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	6	AM2	1	Eau de réseau	Network water	sp	3,3	+	2,53	+	+	+	+	PA	PA	2,47	+	+	+	PA	/	/	/	2,46	+	PA
2009	6	AM3	1	Eau glacée	Frozen water	sp	4	+	2,57	+	+	+	+	PA	PA	2,49	+	+	+	PA	/	/	/	2,43	+	PA
2009	6	AM4	1	Eau de process	Process water	sp	3,2	+	2,62	+	+	+	+	PA	PA	2,48	+	+	+	PA	/	/	/	2,49	+	PA
2009	6	AM5	1	Eau glacée	Frozen water	sp	4,05	+	2,60	+	+	+	+	PA	PA	2,53	+	+	+	PA	/	/	/	2,54	+	PA
2009	6	AM6	1	Eau glacée	Frozen water	sp	2,86	+	2,63	+	+	+	+	PA	PA	2,56	+	+	+	PA	/	/	/	2,49	+	PA
2009	6	AM7	1	Eau de rinçage légumes	Rinsing water vegetables	sp	4,8	+	2,49	+	+	+	+	PA	PA	2,42	+	+	+	PA	/	/	/	2,56	+	PA
2017	6	VEC48	1	Process water: vegetables cleaning water	Process water: vegetables cleaning water	se	1,6	-	1,85	+	+	+	+	PD	PD	1,88	+	+	+	PD	1,9	+	PD	1,87	+	PD
2017	6	VEC152	1	Process water: fish preparation	Process water: fish preparation	se	2,2	+	1,86	+	+	+	+	PA	PA	1,83	+	+	+	PA	1,97	+	PA	1,76	+	PA
2009	6	AN3	2	Résidus atelier préparation sandwich	Residue sandwich preparation workshop	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	6	AN4	2	Résidus stand charcuterie	Residue charcuterie stand	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	6	AN5	2	Résidus plan de découpe poissonnerie	Residue cutting plane fishmonger	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	6	AN6	2	Résidus stand plat cuisiné	Residue cooked dish stand	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	6	AN7	2	Résidus plat cuisiné viande	Residue dish cooked meat	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	6	AN8	2	Résidus atelier pâtisserie	Residue pastry workshop	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	6	AN9	2	Résidus gastronome plat cuisiné	Residue cooked dish	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	6	AN10	2	Résidus salade composée stand	Residue salad composed stand	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	6	AN11	2	Résidus plan de travail stand traiteur	Residual work plan stand catering	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	6	AN12	2	Résidus découpe volaille	Residue poultry	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	6	AL1	2	Résidus stand traiteur	Residue stand catering	sp	3,2	+	1,73	+	+	+	+	PA	PA	1,53	+	+	+	PA	/	/	/	1,94	+	PA
2009	6	AL2	2	Résidus stand fromage	Residue cheese stand	sp	4	+	2,49	+	+	+	+	PA	PA	2,38	+	+	+	PA	/	/	/	2,44	+	PA
2009	6	AL3	2	Résidus traiteur (viande)	Residue catering (meat)	sp	4,8	+	2,51	+	+	+	+	PA	PA	2,42	+	+	+	PA	/	/	/	2,36	+	PA
2009	6	AL4	2	Résidus découpe abattoir	Residue slaughterhouse	sp	5,6	+	2,47	+	+	+	+	PA	PA	2,57	+	+	+	PA	/	/	/	2,59	+	PA
2009	6	AL5	2	Résidus stand charcuterie	Residue charcuterie stand	sp	2,9	+	2,55	+	+	+	+	PA	PA	2,40	+	+	+	PA	/	/	/	2,45	+	PA
2009	6	AL6	2	Résidus stand traiteur (sauce)	Residue stand catering	sp	3,6	+	2,59	+	+	+	+	PA	PA	2,41	+	+	+	PA	/	/	/	2,45	+	PA
2009	6	AL7	2	Résidus découpé charcuterie	Residue cutting delicatessen	sp	4,3	+	2,56	+	+	+	+	PA	PA	2,39	+	+	+	PA	/	/	/	2,37	+	PA
2009	6	AL8	2	Résidus stand fromage	Residue cheese stand	sp	5	+	2,55	+	+	+	+	PA	PA	2,37	+	+	+	PA	/	/	/	2,45	+	PA
2009	6	AN1	2	Résidus atelier charcuterie	Residue work shop delicatessen	sp	6,5	+	2,40	+	+	+	+	PA	PA	2,42	+	+	+	PA	/	/	/	2,46	+	PA
2017	6	VEC151	2	Residue cutting table	Residue cutting table	se	2,2	+	1,74	+	+	+	+	PA	PA	1,76	+	+	+	PA	1,31	+	PA	1,26	+	PA
2009	6	AL9	3	Surface planche à découpé	Surface cutting board	sp	<1	-	0,02	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	6	AL10	3	Plan de travail abattoir	Slaughterhouse work plan	sp	<1	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	6	AL11	3	Table cuisine	Kitchen table	sp	<1	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	6	AL12	3	Paroi interne réfrigérateur	Internal wall refrigerator	sp	<1	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	6	AN17	3	Mur carrelé plan de travail	Tiled wall wortop	sp	5	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	/	/	/
2009	6	AO9	3	Etagère chambre froide positive	Shelf positive cold room	/	/	-	0,01	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	0	-	NA
2009	6	AO10	3	Planche à découper avant lavage	Cutting board before washing	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	0	-	NA
2009	6	AO11	3	Douchette rinçage légumerie	Hand shower reinforcement	/	/	-	0,00	-	-	-	-	NA	NA	0,00	-	-	-	NA	/	/	/	0	-	NA
2009	6	AN16	3	Contour évier	Contour sink	sp	10,5	+	2,43	+	+	+	+	PA	PA	2,42	+	+	+	PA	/	/	/	2,53	+	PA
2009	6	AN18	3	Couvercle poubelle atelier boucherie	Trash cancover butcher shop	sp	6	+	2,28	+	+	+	+	PA	PA	2,28	+	+	+	PA	/	/	/	2,25	+	PA
2009	6	AO1	3	Couvercle poubelle atelier	Workshop trash lid	sp	6	+	2,49	+	+	+	+	PA	PA	2,42	+	+	+	PA	/	/	/	2,65	+	PA
2009	6	AO2	3	Table inox atelier avant lavage	Stainless steel table before washing	sp	0,4	+	2,54	+	+	+	+	PA	PA	2,50	+	+	+	PA	/	/	/	2,57	+	PA

Study	Protocol	Code	Type	Product (french name)	Product	Artificial conta.		ISO 16654	VIDAS ECPT																	
									15h incubation time						24h incubation time					15h + Storage of the broth			24h + Storage of the broth			
									TV	DI	ICE	Final result		Agreement		TV	DI	ICE	Final result	Agreement	TV	Final result	Agreement	TV	Final result	Agreement
												DI	ICE	DI	ICE											
2009	6	AO7	3	Lame couteau avant lavage	Blade knife before washing	sp	11,2	+	2,30	+	+	+	+	PA	PA	2,37	+	+	+	PA	/	/	/	2,50	+	PA
2009	6	AO12	3	Mur gauche zone blanche atelier	Left wall white area workshop	sp	6,4	+	2,43	+	+	+	+	PA	PA	2,44	+	+	+	PA	/	/	/	2,51	+	PA
2017	6	VEC54	3	Ecouvillon 1	Swab 1	se	2,6	-	0,00	-	-	-	-	NA	NA	/	/	/	/	/	/	/	/	/	/	
2017	6	VEC55	3	Eponge 1	Sponge 1	se	2,6	-	0,00	-	-	-	-	NA	NA	/	/	/	/	/	/	/	/	/	/	
2017	6	VEC113	3	Ecouvillon 2	Swab 2	se	4,3	+	1,99	+	+	+	+	PA	PA	1,84	+	+	+	PA	1,85	+	PA	1,86	+	PA
2017	6	VEC149	3	Ecouvillon table	Swab: table	se	2,2	+	1,72	+	+	+	+	PA	PA	1,37	+	+	+	PA	1,92	+	PA	1,12	+	PA
2017	6	VEC150	3	Ecouvillon réfrigérateur	Swab: fridge	se	2,2	-	0,00	-	-	-	-	ND	ND	0,00	-	-	-	ND	0,00	-	ND	0,00	-	ND
2017	6	VEC153	3	Ecouvillon table de découpe	Swab: cutting table	se	2,2	+	1,95	+	+	+	+	PA	PA	1,83	+	+	+	PA	1,99	+	PA	1,86	+	PA
2017	6	VEC154	3	Ecouvillon atelier préparation froide	Swab: worktop, cold preparation	se	2,2	-	0,00	-	-	-	-	ND	ND	0,00	-	-	-	ND	0,00	-	ND	0,00	-	ND
2017	6	VEC155	3	Ecouvillon atelier préparation chaude	Swab: worktop, hot preparation	se	2,2	-	0,00	-	-	-	-	ND	ND	0,00	-	-	-	ND	0,00	-	ND	0,00	-	ND

APPENDIX 5

RELATIVE LEVEL OF DETECTION : RAW DATA (ISHA)

Caption: / : test not realized
∅ : absence of colonies
FP : false positive result
A : absence
P : presence
0 / 1 / 2 / 3 / 4 : level of typical flora, from absence to high
∅ / L / M / H : level of annex flora, from absence to high
L.m : Listeria monocytogenes
Confirmation : streaking on selective medium + ISO 11290-1 confirmation
Conf. 1 : streaking on selective medium + visual reading
Conf. 2 : streaking on selective medium + API Listeria
Conf. 3 : streaking on selective medium + RAPIDEC L-mono
Conf. 4 : streaking on selective medium + Fast Rhamnose
Conf. 5 : streaking on selective medium + ISO 11290-1 confirmation (case n°1)
chromID L. mono: w=white colonies / b=blue colonies

RAW MEAT PRODUCTS (2014) – Protocol 1

Matrix : Ground beef (25g)
TVC : 1 200 UFC/g

Level	N°	Alternative method								Reference method						Comparaison AM/RM
		VIDAS ECPT		Confirmation					Final result	Bilan 6 h + 18 h		Confirmation			Final result	
		RFV 16 h	Test result	CT-SMAC	CT O157 H7 ID	Test latex	Galerie	VIDAS ICE		CT-SMAC	ChromID O157	Oxydase	Indole	Latex		
Level 0	1	0,00	-	/	/	/	/	/	A	Ø1	Ø1	/	/	/	A	AM: 0+ / 5- RM: 0+ / 5-
	2	0,00	-	/	/	/	/	/	A	Ø0	Ø0	/	/	/	A	
	3	0,00	-	/	/	/	/	/	A	Ø1	Ø1	/	/	/	A	
	4	0,00	-	/	/	/	/	/	A	Ø2	Ø1	/	/	/	A	
	5	0,00	-	/	/	/	/	/	A	Ø1	Ø1	/	/	/	A	
Low level 1,0 CFu/25 g	1	2,37	+	+	+	+	+	+	P	Ø2	Ø1	/	/	/	A	AM: 11+ / 9- RM: 10+ / 10-
	2	0,00	-	/	/	/	/	/	A	A2	A2	-	+	+	P	
	3	0,00	-	/	/	/	/	/	A	Ø1	Ø0	/	/	/	A	
	4	0,00	-	/	/	/	/	/	A	A2	A2	-	+	+	P	
	5	2,10	+	+	+	+	+	+	P	A2	A2	-	+	+	P	
	6	2,40	+	+	+	+	+	+	P	A0	A1	-	+	+	P	
	7	0,00	-	/	/	/	/	/	A	Ø1	Ø1	/	/	/	A	
	8	2,37	+	+	+	+	+	+	P	Ø1	Ø0	/	/	/	A	
	9	0,00	-	/	/	/	/	/	A	A0	A1	-	+	+	P	
	10	0,00	-	/	/	/	/	/	A	Ø0	Ø0	/	/	/	A	
	11	2,36	+	+	+	+	+	+	P	A1	A1	-	+	+	P	
	12	2,32	+	+	+	+	+	+	P	Ø1	Ø1	/	/	/	A	
	13	0,00	-	/	/	/	/	/	A	A2	A2	-	+	+	P	
	14	2,38	+	+	+	+	+	+	P	A1	A2	-	+	+	P	
	15	2,35	+	+	+	+	+	+	P	Ø2	Ø1	/	/	/	A	
	16	2,15	+	+	+	+	+	+	P	Ø1	Ø1	/	/	/	A	
	17	2,36	+	+	+	+	+	+	P	A2	A2	-	+	+	P	
	18	1,08	+	+	+	+	+	+	P	Ø0	Ø0	/	/	/	A	
	19	0,00	-	/	/	/	/	/	A	Ø0	Ø1	/	/	/	A	
	20	0,00	-	/	/	/	/	/	A	A2	A2	-	+	+	P	
High level 5,5 CFu/25 g	1	2,39	+	+	+	+	+	+	P	B1	B0	-	+	+	P	AM: 5+ / 0- RM: 5+ / 0-
	2	2,18	+	+	+	+	+	+	P	B1	B0	-	+	+	P	
	3	2,38	+	+	+	+	+	+	P	A2	A2	-	+	+	P	
	4	2,40	+	+	+	+	+	+	P	B0	B0	-	+	+	P	
	5	2,41	+	+	+	+	+	+	P	A2	A2	-	+	+	P	

RAW MEAT PRODUCTS (2009) – Protocol 2

Matrix : Ground beef (25g)

Level of contamination	Real level	Reference method EN ISO 16654					Méthode alternative VIDAS ECPT after 6h at 41,5°C										Méthode alternative VIDAS ECPT after 24h at 41,5°C														
		After 6h at 41,5°C		After 24h at 41,5°C		Result	Conclusion	Heating with a water bath			Heating with a Heat and GO			Direct plating		Vidas ICE		Final result	Conclusion	Heating with a water bath			Heating with a Heat and GO			Direct plating		Vidas ICE		Final result	Conclusion
		CT-Smac	ChromID	CT-Smac	ChromID			RFV	VT	Test result	RFV	VT	Test result	CT-Smac	CT-ChromID	CT-Smac	ChromID			RFV	VT	Test result	RFV	VT	Test result	CT-Smac	CT-ChromID	CT-Smac	ChromID		
1	0	∅	∅	/	/	-	0/6	-4	0,00	-	-4	0,00	-	/	/	/	/	-	0	-5	0,00	-	-3	0,00	-	/	/	/	/	-	0
		∅	∅	/	/	-		-3	0,00	-	-4	0,00	-	/	/	/	/	-		-5	0,00	-	-2	0,00	-	/	/	/	/	-	
		∅	∅	/	/	-		-5	0,00	-	-5	0,00	-	/	/	/	/	-		14	0,00	-	11	0,00	-	/	/	/	/	-	
		∅	-LE	/	/	-		-5	0,00	-	-5	0,00	-	/	/	/	/	-		-4	0,00	-	-4	0,00	-	/	/	/	/	-	
		∅	∅	/	/	-		-5	0,00	-	-3	0,00	-	/	/	/	/	-		-4	0,00	-	0	0,00	-	/	/	/	/	-	
		∅	∅	/	/	-		-3	0,00	-	-4	0,00	-	/	/	/	/	-		-5	0,00	-	-3	0,00	-	/	/	/	/	-	
2	0,27	∅	∅	∅	-ME	-	2/6	-5	0,00	-	-4	0,00	-	/	/	/	/	-	1/6	-3	0,00	-	-5	0,00	-	/	/	/	/	-	1/6
		+LA	+LB	/	/	+		-4	0,00	-	-1	0,00	-	/	/	/	/	-		-4	0,00	-	-5	0,00	-	/	/	/	/	-	
		∅	∅	∅	-ME	-		-4	0,00	-	-5	0,00	-	/	/	/	/	-		-5	0,00	-	-4	0,00	-	/	/	/	/	-	
		∅	∅	-LE	-ME	-		-4	0,00	-	-4	0,00	-	/	/	/	/	-		-5	0,00	-	11	0,00	-	/	/	/	/	-	
		+LA	+LA	/	/	+		-5	0,00	-	-4	0,00	-	/	/	/	/	-		-3	0,00	-	-5	0,00	-	/	/	/	/	-	
		∅	∅	-LE	-ME	-		163	0,03	-	510	0,11	+	+LA(1)	+LB(2)	+LA	+LB(1)	+		6836	1,54	+	7415	1,67	+	+MA	+MB	+MA	+MB	+	
3	0,74	+MA	+MA	/	/	+	4/6	8005	1,74	+	7129	1,55	+	+MA	+LB	+LA(2)	+LA	+	5/6	7922	1,73	+	7614	1,66	+	+MA	+HB	+MA	+MB	+	5/6
		∅	-LE	∅	-ME	-		8282	1,80	+	7603	1,66	+	+MA	+MB	+LB(2)	+LB	+		8972	1,96	+	8057	1,76	+	+MA	+HB	+MA	+MB	+	
		+LA	+LA	/	/	+		-1	0,00	-	-3	0,00	-	∅	-LE	∅	∅	-		-4	0,00	-	-4	0	-	-LE	-ME	∅	-ME	-	
		+LA	+MA	/	/	+		8537	1,86	+	7733	1,68	+	+MA	+LB	+LA(4)	+LB	+		8540	1,86	+	7911	1,72	+	+HA	+HB	+MA	+MB	+	
		∅	-LE	∅	-ME	-		8287	1,81	+	7669	1,67	+	+LA	+LB	+LA	+LB	+		8370	1,82	+	7946	1,73	+	+MA	+MB	+MA	+HB	+	
		+LA	+MB	/	/	+		8212	1,79	+	7011	1,63	+	+MA	+MB	+LA	+LA	+		8736	1,90	+	8196	1,79	+	+MB	+MB	+MA	+HB	+	
4	1,31	+MA	+LB	/	/	+	6/6	8312	1,81	+	6887	1,50	+	+LB	+MB	+LA	+LB	+	6/6	8626	1,88	+	8520	1,86	+	+MB	+HB	+MA	+MB	+	6/6
		+MA	+MA	/	/	+		8080	1,76	+	7044	1,53	+	+MA	+MB	+LA	+LB(2)	+		9062	1,98	+	8453	1,84	+	+MA	+MB	+MA	+MB	+	
		+LA	+MA	/	/	+		7939	1,73	+	7454	1,62	+	+MA	+LB	+LA(2)	+LA	+		8917	1,94	+	8708	1,9	+	+MA	+MB	+MA	+HB	+	
		+MA	+MB	/	/	+		7956	1,73	+	7592	1,65	+	+LA	+MA	+LA(4)	+LA	+		8645	1,88	+	8771	1,91	+	+MB	+MB	+MA	+MB	+	
		+MA	+MA	/	/	+		8602	1,87	+	6862	1,49	+	+MA	+LB	+LA	+LB	+		9126	1,99	+	8776	1,91	+	+MA	+HB	+MA	+MB	+	
		+LA	+MB	/	/	+		8553	1,86	+	4298	0,93	+	+MA	+LB	+LA	+LA	+		8416	1,83	+	8699	1,9	+	+MB	+MB	+MA	+MB	+	

TVC: 17 000 CFU/g

Total bacteria growth Distribution of flora
L = low A = pure culture of suspicious colonies
M = medium B = mix with a majority of suspicious colonies
H = high C = mix with a minority of suspicious colonies
 D = mix with rare suspicious colonies
 E = absence of suspicious colonies

RAW MEAT PRODUCTS (2009) – Protocol 3

Matrix : Ground beef (375g)

Level of contamination	Real level	Reference method EN ISO 16654						Méthode alternative VIDAS ECPTafter 8h at 41,5°C								Méthode alternative VIDAS ECPT after 24h at 41,5°C									
		After 6h at 41,5°C		After 24h at 41,5°C		Result	Conclusion	Vidas ECPT			Direct plating		Vidas Ice		Final result	Conclusion	Vidas ECPT			Direct plating		Vidas Ice		Final result	Conclusion
		CT-Smac	ChromID	CT-Smac	ChromID			RFV	VT	Test result	CT-Smac	CT-ChromID	CT-Smac	ChromID			RFV	VT	Test result	CT-Smac	CT-ChromID	CT-Smac	ChromID		
1	0	∅	-LE	-LE	-ME	-	0/6	-4	0,00	-	/	/	/	/	-	0/6	-5	0,00	-	/	/	/	/	-	0/6
		∅	-3LE	∅	-LE	-		-4	0,00	-	/	/	/	/	-		-5	0,00	-	/	/	/	/	-	
		∅	-LE	∅	-ME	-		-4	0,00	-	/	/	/	/	-		-3	0,00	-	/	/	/	/	-	
		∅	-LE	-LE	-ME	-		-4	0,00	-	/	/	/	/	-		-3	0,00	-	/	/	/	/	-	
		-1LE	-LE	-ME	-LE	-		-5	0,00	-	/	/	/	/	-		-5	0,00	-	/	/	/	/	-	
		∅	-LE	∅	-ME	-		-4	0,00	-	/	/	/	/	-		-5	0,00	-	/	/	/	/	-	
2	0,32	∅	∅	∅	-ME	-	1/6	-5	0,00	-	/	/	/	/	-	1/6	-5	0,00	-	/	/	/	/	-	1/6
		∅	-LE	∅	-ME	-		-4	0,00	-	/	/	/	/	-		-4	0,00	-	/	/	/	/	-	
		∅	∅	-ME	-ME	-		-4	0,00	-	/	/	/	/	-		-4	0,00	-	/	/	/	/	-	
		∅	∅	∅	-LE	-		1141	0,23	+	+MC	+LD	∅	+1LB	+		6514	1,35	+	+MB	+MC	+LB	+MB	+	
		+1LA	+2LB	/	/	+		-3	0,00	-	/	/	/	/	-		-2	0,00	-	/	/	/	/	-	
		∅	∅	∅	-LE	-		-3	0,00	-	/	/	/	/	-		-5	0,00	-	/	/	/	/	-	
3	0,64	∅	-LE	∅	-ME	-	3/6	-5	0,00	-	/	/	/	/	-	2/6	-4	0,00	-	/	/	/	/	-	3/6
		+2LA	+1LA	/	/	+		1004	0,20	+	+MC	+MC	+2LA	-LE	+		7492	1,56	+	+MB	+MC	+LB	+MB	+	
		+LA	+LB	/	/	+		-5	0,00	-	/	/	/	/	-		-4	0,00	-	/	/	/	/	-	
		∅	∅	-ME	-ME	-		-5	0,00	-	/	/	/	/	-		-4	0,00	-	/	/	/	/	-	
		+2LA	+LB	/	/	+		2524	0,52	+	-ME	-ME	∅	-ME	-		6573	1,37	+	+MC	+MC	+MB	+MC	+	
		∅	∅	-LE	-ME	-		4170	0,86	+	-ME	-ME	+1LA	+2LB	+		9704	2,02	+	+LB	+MB	+MB	+MB	+	
4	0,91	+LA	+1LA	/	/	+	5/6	-4	0,00	-	/	/	/	/	-	5/6	-4	0,00	-	/	/	/	/	-	5/6
		+LA	+1LA	/	/	+		7473	1,63	+	+MA	+MB	+MA	+MB	+		8069	1,76	+	+HB	+MC	+MB	+MB	+	
		∅	-LE	∅	-ME	-		7697	1,68	+	+MA	+MB	+2LA	+3LB	+		7459	1,63	+	+HB	+HC	+MB	+MB	+	
		+LA	+2LB	/	/	+		5599	1,22	+	+MB	+MB	+LA	+LB	+		7816	1,70	+	+HB	+MB	+MB	+MB	+	
		+2LA	+LB	/	/	+		6140	1,34	+	+MB	+MB	+MA	+MB	+		7673	1,67	+	+MB	+MC	+MB	+MB	+	
		+4LA	+1LA	/	/	+		6158	1,34	+	+MA	+LB	+LA	+LB	+		8330	1,82	+	+HB	+HB	+MB	+MB	+	
5	1,58	+LA	+LA	/	/	+	6/6	8480	1,85	+	+MB	+MB	+1LA	+MC	+	6/6	8850	1,93	+	+HB	+MB	+MB	+MB	+	6/6
		+LA	+LA	/	/	+		8118	1,77	+	+MB	+MB	+2LA	+MC	+		8677	1,89	+	+MB	+MB	+MB	+MB	+	
		+LA	+LA	/	/	+		8386	1,83	+	+MB	+MB	+LA	+MC	+		8775	1,91	+	+MC	+HC	+MB	+MB	+	
		+LA	+LA	/	/	+		7698	1,68	+	+MB	+MB	+LA	+MB	+		8255	1,80	+	+HB	+MB	+MB	+MB	+	
		+LA	+LA	/	/	+		8796	1,92	+	+MB	+MB	+4LA	+MC	+		8617	1,88	+	+MB	+MB	+MB	+MB	+	
		+LA	+LA	/	/	+		7999	1,74	+	+MB	+MB	+2LA	+MC	+		8682	1,89	+	+MB	+MC	+MB	+MB	+	

TVC: 62 000 CFU/g

Total bacteria growth Distribution of flora
L = low A = pure culture of suspicious colonies
M = medium B = mix with a majority of suspicious colonies
H = high C = mix with a minority of suspicious colonies
 D = mix with rare suspicious colonies
 E = absence of suspicious colonies

Raw Vegetable (2009) – Protocol 4

Matrix : Spinach (25g)

Level of contamination	Real level	Reference method EN ISO 16654						Alternative method VIDAS ECPT after 8h at 41,5°C								Alternative method VIDAS ECPT after 24h at 41,5°C									
		After 6h at 41,5°C		After 24h at 41,5°C		Result	Conclusion	VIDAS ECPT			Direct plating		Vidas Ice		Final result	Conclusion	Vidas ECPT			Direct plating		Vidas Ice		Final result	Conclusion
		CT-Smac	ChromID	CT-Smac	ChromID			RFV	VT	Résultat du test	CT-Smac	CT-ChromID	CT-Smac	ChromID			RFV	VT	Test result	CT-Smac	CT-ChromID	CT-Smac	ChromID		
1	0	-LE	-ME	-LE	-ME	-	0/6	-3	0,00	-	/	/	/	/	-	0/6	-3	0,00	-	/	/	/	/	-	0/6
		∅	-LE	∅	-ME	-		-3	0,00	-	/	/	/	/	-		-4	0,00	-	/	/	/	/	-	
		∅	-LE	∅	-ME	-		-3	0,00	-	/	/	/	/	-		-3	0,00	-	/	/	/	/	-	
		∅	∅	∅	-LE	-		-3	0,00	-	/	/	/	/	-		-5	0,00	-	/	/	/	/	-	
		-LE	-ME	-LE	-ME	-		-4	0,00	-	/	/	/	/	-		-3	0,00	-	/	/	/	/	-	
		-LE	-LE	-LE	-LE	-		-3	0,00	-	/	/	/	/	-		-3	0,00	-	/	/	/	/	-	
2	0,28	∅	-LE	∅	-ME	-	1/6	7761	1,94	+	+LA	+LA	+LB	+LB	+	2/6	9390	2,34	+	+MA	+MA	+MA	+MA	+	2/6
		∅	-LE	∅	-ME	-		-5	0,00	-	/	/	/	/	-		-5	0,00	-	/	/	/	/	-	
		+MB	+MA	/	/	+		9079	2,27	+	+1LA	+LA	+LB	+LB	+		9315	2,33	+	+MA	+MA	+MB	+MB	+	
		∅	∅	∅	-LE	-		-6	0,00	-	/	/	/	/	-		3	0,00	-	/	/	/	/	-	
		∅	-LE	∅	-ME	-		-5	0,00	-	/	/	/	/	-		-7	0,00	-	/	/	/	/	-	
		∅	∅	∅	∅	-		-5	0,00	-	/	/	/	/	-		-5	0,00	-	/	/	/	/	-	
3	0,66	+MB	+MB	/	/	+	2/6	-3	0,00	-	/	/	/	/	-	0/6	-3	0,00	-	/	/	/	/	-	0/6
		-LE	-ME	-ME	-ME	-		-2	0,00	-	/	/	/	/	-		-3	0,00	-	/	/	/	/	-	
		-LE	-ME	-ME	-ME	-		-3	0,00	-	/	/	/	/	-		-3	0,00	-	/	/	/	/	-	
		∅	-ME	∅	-ME	-		-3	0,00	-	/	/	/	/	-		-3	0,00	-	/	/	/	/	-	
		+LA	+MB	/	/	+		-3	0,00	-	/	/	/	/	-		-2	0,00	-	/	/	/	/	-	
		-LE	-ME	-LE	-ME	-		-2	0,00	-	/	/	/	/	-		-1	0,00	-	/	/	/	/	-	
4	1,48	+LA	+LB	/	/	+	5/6	10697	2,32	+	+LA	+LB	+LB	+MB	+	4/6	11078	2,41	+	+MB	+MB	+MB	+MB	+	4/6
		+LA	+MB	/	/	+		11060	2,40	+	+1LA	+LB	+LB	+LB	+		11137	2,42	+	+MA	+HB	+MB	+MB	+	
		+LB	+MB	/	/	+		-2	0,00	-	/	/	/	/	-		-3	0,00	-	/	/	/	/	-	
		∅	-LE	∅	-ME	-		11693	2,54	+	+LA	+MB	+MB	+MB	+		11289	2,45	+	+MB	+MB	+MB	+HB	+	
		+LA	+MB	/	/	+		-1	0,00	-	/	/	/	/	-		-2	0,00	-	/	/	/	/	-	
		+LA	+MB	/	/	+		11486	2,50	+	+LA	+LB	+LB	+MB	+		11479	2,49	+	+MA	+MB	+MB	+MB	+	
5	3,1	+MA	+LA	/	/	+	6/6	4980	1,08	+	∅	∅	+LB	+LB	+	6/6	11056	2,40	+	+MA	+MB	+MB	+MB	+	6/6
		+LA	+LA	/	/	+		9474	2,06	+	+1LA	+LB	+LC	+LB	+		11375	2,47	+	+MA	+MA	+MB	+HA	+	
		+LA	+LA	/	/	+		9571	2,08	+	+2LA	∅	+LB	-LE	+		11498	2,50	+	+MB	+HB	+HB	+HB	+	
		+MA	+LA	/	/	+		9243	2,01	+	+3LA	+LA	+LB	+LB	+		11253	2,44	+	+MA	+HB	+MB	+MA	+	
		+LA	+LA	/	/	+		9888	2,15	+	+1LA	+LA	+LC	+1LA	+		11448	2,49	+	+MB	+MB	+MB	+MB	+	
		+LA	+LA	/	/	+		10293	2,24	+	+3LA	+4LA	+LB	+LB	+		11494	2,50	+	+MB	+MB	+MB	+MA	+	

TVC : 23 000 000 CFU/g (level 1, 2, 4, 5)- 200 000 000 CFU/g (level 3)

Total bacteria growth Distribution of flora
L = low A = pure culture of suspicious colonies
M = medium B = mix with a majority of suspicious colonies
H = high C = mix with a minority of suspicious colonies
 D = mix with rare suspicious colonies
 E = absence of suspicious colonies

Dairy products (2014) – Protocol 5

Matrix : Raw milk (25mL)

Matrix	Contamination level (CFU/25g)	Sample ID	RM: NF EN ISO 16654							AM: Vidas ECPT 20h														AM: 20h + storage 3 days at 5°C						Number of positive results per method							
			6H		24H		Confirmation		Final Result	Detection Vidas		confirmation 1						confirmation 2: after VIDAS ICE						Detection Vidas		Confirmation 1		Confirmation 2			Final Result						
			CT-SMAC	Chroma gar O157	CT-SMAC	Chroma gar O157	Indole	Serology		VT	Result	CT-SMAC	CT-ChromID O157:H7	With the CT-SMAC:		With the Chrom ID-latex	After purification:		Final Result Conf.1	CT-SMAC	CT-ChromID O157:H7	With the CT-SMAC:		With the Chrom ID-latex	After purification:		Final Result Conf.2	VT	Result			CT-SMAC	CT-ChromID O157:H7	CT-SMAC	CT-ChromID O157:H7	Final Result	
Raw milk	/	VEC 01	00	00	0L	0H	/	/	A	0.00	-	00	0M	/	/	/	/	/	/	A	00	0M	/	/	/	/	/	/	A	0.00	-	00	00	00	00	A	RM: 0 / 5
		VEC 02	00	00	0M	0H	/	/	A	0.00	-	00	0M	/	/	/	/	/	/	A	00	0L	/	/	/	/	/	/	A	0.00	-	00	00	00	00	A	
		VEC 03	00	0L	00	0H	/	/	A	0.00	-	0M	0M	/	/	/	/	/	/	A	0L	0L	/	/	/	/	/	/	A	0.00	-	00	00	0L	0L	A	
		VEC 04	0L	0L	0M	0H	/	/	A	0.00	-	0M	0M	/	/	/	/	/	/	A	0L	0L	/	/	/	/	/	/	A	0.00	-	0L	00	0L	0L	A	
		VEC 05	00	0L	0L	0H	/	/	A	0.00	-	0L	0M	/	/	/	/	/	/	A	00	0M	/	/	/	/	/	/	A	0.00	-	00	0L	0L	0L	A	
	0.8	VEC F1	10	10	40	2L	+	+	P	0.00	-	00	0H	/	/	/	/	/	/	A	0L	0M	/	/	/	/	/	/	A	0.00	-	0M	0H	00	0H	A	RM: 8 / 20
		VEC F2	10	00	40	2H	+	+	P	1.94	+	10	1H	E.coli	+	+	+	+	+	P	3L	3L	E.coli	+	+	+	+	P	1.93	+	30	2L	30	30	P		
		VEC F3	10	0L	40	0H	+	+	P	1.76	+	10	1M	E.coli	+	+	+	+	+	P	2L	2L	E.coli	+	+	+	+	P	1.69	+	20	2L	30	20	P		
		VEC F4	10	00	40	2H	+	+	P	0.00	-	00	0M	/	/	/	/	/	/	A	00	0M	/	/	/	/	/	/	A	0.00	-	0L	0M	0L	0H	A	
		VEC F5	10	0L	40	1H	+	+	P	1.93	+	1M	2M	E.coli	+	+	+	+	+	P	3L	4L	E.coli	+	+	+	+	P	1.87	+	2L	2L	40	3L	P		
		VEC F6	10	00	40	0H	+	+	P	0.00	-	00	0H	/	/	/	/	/	/	A	00	0L	/	/	/	/	/	/	A	0.00	-	0L	0M	00	0H	A	
		VEC F7	0L	0L	0H	0H	/	/	A	1.72	+	10	2L	E.coli	+	+	+	+	+	P	20	2L	E.coli	+	+	+	+	P	1.76	+	20	2L	40	2L	P		
		VEC F8	0L	0L	0H	0H	/	/	A	0.00	-	0L	0H	/	/	/	/	/	/	A	00	0H	/	/	/	/	/	/	A	0.00	-	0L	0M	0L	0M	A	
		VEC F9	0L	0L	0H	0H	/	/	A	0.00	-	0L	0H	/	/	/	/	/	/	A	00	0L	/	/	/	/	/	/	A	0.00	-	0M	0M	00	0H	A	
		VEC F10	0L	0L	0H	0H	/	/	A	0.00	-	00	0M	/	/	/	/	/	/	A	0L	0M	/	/	/	/	/	/	A	0.00	-	0L	0L	00	0H	A	
		VEC F11	00	00	0H	0H	/	/	A	0.11	+	1M	1M	E.coli	+	+	+	+	+	P	10	1M	E.coli	+	+	+	+	P	0.06	+	2L	2L	30	3L	P		
		VEC F12	0L	0L	0H	0H	/	/	A	1.87	+	20	2M	E.coli	+	+	+	+	+	P	3L	3L	E.coli	+	+	+	+	P	1.94	+	20	2M	40	2L	P		
		VEC F13	10	0L	40	1H	+	+	P	1.92	+	20	20	E.coli	+	+	+	+	+	P	30	4L	E.coli	+	+	+	+	P	1.91	+	20	2L	30	2L	P		
		VEC F14	10	0L	40	1H	+	+	P	0.00	-	0L	0H	/	/	/	/	/	/	A	00	0M	/	/	/	/	/	/	A	0.00	-	0M	0M	0M	0H	A	
		VEC F15	00	0L	0H	0H	/	/	A	1.90	+	30	40	E.coli	+	+	+	+	+	P	30	4L	E.coli	+	+	+	+	P	1.90	+	30	2L	30	30	P		
	VEC F16	0L	0L	0H	0H	/	/	A	1.28	+	10	2M	E.coli	+	+	+	+	+	P	20	2M	E.coli	+	+	+	+	P	1.30	+	3L	2L	40	3L	P			
	VEC F17	0L	0L	0H	0H	/	/	A	0.00	-	0L	0H	/	/	/	/	/	/	A	00	2M	/	/	-	-	-	-	A	0.00	-	0L	0M	0M	0H	A		
	VEC F18	00	00	0L	0H	/	/	A	0.00	-	0L	0H	/	/	/	/	/	/	A	00	0M	/	/	/	/	/	/	A	0.00	-	0L	0M	00	0M	A		
	VEC F19	0L	0M	0H	0H	/	/	A	1.62	+	20	1L	E.coli	+	+	+	+	+	P	30	2L	E.coli	+	+	+	+	P	1.75	+	30	2L	30	30	P			
	VEC F20	00	0L	0H	0H	-	-	A	0.00	-	0L	0H	/	/	/	/	/	/	A	00	0M	/	/	/	/	/	/	A	0.00	-	0M	0M	00	0H	A		
1	VEC E1	10	0L	30	0H	+	+	P	1.72	+	30	2L	E.coli	+	+	+	+	+	P	30	30	E.coli	+	+	+	+	P	1.74	+	20	2L	20	3L	P	RM: 5 / 5		
	VEC E2	10	10	30	2H	+	+	P	1.12	+	1L	2L	E.coli	+	+	+	+	+	P	2L	2L	E.coli	+	+	+	+	P	1.03	+	20	2L	30	2L	P			
	VEC E3	20	20	40	3M	+	+	P	1.63	+	1L	2L	E.coli	+	+	+	+	+	P	2L	3L	E.coli	+	+	+	+	P	1.19	+	30	2L	30	3L	P			
	VEC E4	20	20	40	2M	+	+	P	1.36	+	1L	1M	E.coli	+	+	+	+	+	P	2L	3L	E.coli	+	+	+	+	P	1.35	+	30	1L	30	2L	P			
	VEC E5	10	10	40	2M	+	+	P	0.78	+	2L	2L	E.coli	+	+	+	+	+	P	2L	3L	E.coli	+	+	+	+	P	0.75	+	20	1L	30	2L	P			

TVC: 120000 CFU/mL

Environmental samples (2009) – Protocol 6

Matrix : Process water (25mL)

Level of contamination	Real level	Reference method EN ISO 16654						Alternative method VIDAS ECPT after 15h at 41,5°C								Alternative method VIDAS ECPT after 24h at 41,5°C									
		After 6h at 41,5°C		After 24h at 41,5°C		Result	Conclusion	VIDAS ECPT			Direct plating		Vidas Ice		Final result	Conclusion	Vidas ECPT			Direct plating		Vidas Ice		Final result	Conclusion
		CT-Smac	ChromID	CT-Smac	ChromID			RFV	VT	Résultat du test	CT-Smac	CT-ChromID	CT-Smac	ChromID			RFV	VT	Test result	CT-Smac	CT-ChromID	CT-Smac	ChromID		
1	0*	∅	∅	∅	∅	-	0/6	-6	0,00	-	/	/	/	/	-	0/6	-4	0,00	-	/	/	/	/	-	0/6
		∅	∅	∅	∅	-		-3	0,00	-	/	/	/	/	-		-4	0,00	-	/	/	/	/	-	
		∅	∅	∅	∅	-		-4	0,00	-	/	/	/	/	-		-4	0,00	-	/	/	/	/	-	
		∅	∅	∅	∅	-		-6	0,00	-	/	/	/	/	-		-4	0,00	-	/	/	/	/	-	
		∅	∅	∅	∅	-		-3	0,00	-	/	/	/	/	-		-4	0,00	-	/	/	/	/	-	
		∅	∅	∅	∅	-		-4	0,00	-	/	/	/	/	-		-7	0,00	-	/	/	/	/	-	
2	0,88	∅	∅	∅	∅	-	2/6	-4	0,00	-	/	/	/	/	-	3/6	-5	0,00	-	/	/	/	/	-	3/6
		+MA	+MA	/	/	+		9724	2,49	+	+MA	+MA	+MA	+MA	+		9762	2,50	+	+MA	+MA	+HA	+MA	+	
		∅	∅	∅	∅	-		-5	0,00	-	/	/	/	/	-		-4	0,00	-	/	/	/	/	-	
		∅	∅	∅	∅	-		9599	2,46	+	+MA	+MA	+MA	+MA	+		9943	2,55	+	+MA	+MA	+MA	+MA	+	
		∅	∅	∅	∅	-		-4	0,00	-	/	/	/	/	-		-1	0,00	-	/	/	/	/	-	
		+MA	+MA	/	/	+		9869	2,53	+	+MA	+MA	+MA	+MA	+		9979	2,56	+	+MA	+MA	+MA	+HA	+	
3	0,96	∅	∅	∅	∅	-	3/6	9691	2,26	+	+MA	+MA	+MA	+MA	+	2/6	9296	2,17	+	+MA	+MA	+MA	+MA	+	2/6
		+LA	+LA	/	/	+		1	0,00	-	/	/	/	/	-		-4	0,00	-	/	/	/	/	-	
		+LA	+LA	/	/	+		-5	0,00	-	/	/	/	/	-		-5	0,00	-	/	/	/	/	-	
		∅	∅	∅	∅	-		-4	0,00	-	/	/	/	/	-		-4	0,00	-	/	/	/	/	-	
		+LA	+LA	/	/	+		-3	0,00	-	/	/	/	/	-		-3	0,00	-	/	/	/	/	-	
		∅	∅	∅	∅	-		9981	2,33	+	+MA	+MA	+MA	+MA	+		9778	2,28	+	+MA	+MA	+MA	+MA	+	
4	1,28	∅	∅	∅	∅	-	5/6	9575	2,24	+	+MA	+LA	+MA	+MA	+	4/6	9509	2,22	+	+MA	+MA	+MA	+MA	+	4/6
		+LA	+LA	/	/	+		-4	0,00	-	/	/	/	/	-		-5	0,00	-	/	/	/	/	-	
		+LA	+LA	/	/	+		9337	2,18	+	+MA	+MA	+MA	+MA	+		9737	2,27	+	+MA	+MA	+MA	+MA	+	
		+LA	+LA	/	/	+		9722	2,27	+	+MA	+MA	+MA	+MA	+		9715	2,27	+	+MA	+HA	+MA	+MA	+	
		+LA	+LA	/	/	+		9894	2,31	+	+MA	+MA	+MA	+MA	+		9649	2,25	+	+MA	+MA	+MA	+MA	+	
		+LA	+LA	/	/	+		-5	0,00	-	/	/	/	/	-		-5	0,00	-	/	/	/	/	-	
5	1,7	+5LA	+1LA	/	/	+	6/6	9465	2,42	+	+HA	+MA	+LA	+LA	+	6/6	9211	2,35	+	+HA	+MA	+LA	+LA	+	6/6
		+LA	+LA	/	/	+		9381	2,39	+	+HA	+MA	+MA	+MA	+		9198	2,35	+	+HA	+MA	+LA	+LA	+	
		+2LA	+5LA	/	/	+		9351	2,39	+	+HA	+MA	+MA	+MA	+		9514	2,43	+	+HA	+MA	+MA	+MA	+	
		+LA	+LA	/	/	+		9483	2,42	+	+MA	+MA	+MA	+MA	+		9437	2,41	+	+MA	+MA	+MA	+MA	+	
		+3LA	+LA	/	/	+		9377	2,39	+	+MA	+MA	+LA	+MA	+		9373	2,39	+	+MA	+MA	+LA	+LA	+	
		+5LA	+3LA	/	/	+		9565	2,44	+	+HA	+MA	+LA	+LA	+		9469	2,42	+	+MA	+MA	+LA	+LA	+	

TVC : 20 000 CFU/g (level 2) - 500 00 UFC/g (level 1, 3, 4) - 10 000UFC/g (level 5)

Total bacteria growth Distribution of flora
L = low A = pure culture of suspicious colonies
M = medium B = mix with a majority of suspicious colonies
H = high C = mix with a minority of suspicious colonies
 D = mix with rare suspicious colonies
 E = absence of suspicious colonies

APPENDIX 6

INCLUSIVITY/EXCLUSIVITY : RAW DATA (ISHA)

INCLUSIVITY 2008

Initial validation (specific protocol for raw beef and veal meats 25g)

Strain		Origin	Enumeration of BPW (CFU/225 mL)	Result after 6 h incubation in BPW	RFV	TV	
Ec 3	<i>E coli</i> O157 H7	Feces	12	+	6707	1.51	
Ec 5	<i>E coli</i> O157 H7	Collection	36	+	5640	1.27	
Ec 6	<i>E coli</i> O157 H7	Collection	51	+	9266	2.26	
Ec 7	<i>E coli</i> O157 H7	Environment	14	+	9941	2.22	
Ec 9	<i>E coli</i> O157 H7	Clinical origin	18	+	4632	1.04	
Ec 10	<i>E coli</i> O157 H7	Clinical origin	18	+	7393	1.67	
Ec 11	<i>E coli</i> O157 H7	Clinical origin	20	+	3094	0.70	
Ec 12	<i>E coli</i> O157 H7	Clinical origin	24	+	4970	1.12	
Ec 22	<i>E coli</i> O157 H7	ATCC 43888 (Human feces)	16	+	4840	1.09	
Ec 24	<i>E coli</i> O157 H7	Collection P1446	16	+	6956	1.57	
Ec 25	<i>E coli</i> O157 H7	Collection P1524	12	+	5556	1.25	
Ec 30	<i>E coli</i> O157 H7	Milk	6	+	9436	2.06	
Ec 31	<i>E coli</i> O157 H7	ATCC 43895 (hamburger)	10	+	2412	0.54	
Ec 40	<i>E coli</i> O157 H7	ATCC 35150 (human origin)	18	+	8278	1.87	
Ec 41	<i>E coli</i> O157 H7	ATCC 43894 (human origin)	20	+	312	0.06	
			45	+	8037	1.79	
Ec 42	<i>E coli</i> O157 H7	ATCC 43890 (Human feces)	30	+	8207	1.83	
Ec 43	<i>E coli</i> O157 H7	ATCC 43889 (human origin)	55	+	7698	1.78	
Ec 44	<i>E coli</i> O157 H7	ATCC 46197	59	+	7200	1.67	
Ec 45	<i>E coli</i> O157 H7	Collection	22	+	9368	2.04	
Ec 46	<i>E coli</i> O157 H7	Collection	13	+	9076	1.98	
Ec 47	<i>E coli</i> O157 H7	Collection	15	+	9297	1.03	
Ec 48	<i>E coli</i> O157 H7	Collection	51	+	5585	1.26	
Ec 49	<i>E coli</i> O157 H7	Collection	33	+	9941	2.22	
Ec 50	<i>E coli</i> O157 H7	Collection	60	+	7292	1.62	
Ec 52	<i>E coli</i> O157 H7	Clinical origin	51	+	6518	1.59	
Ec 55	<i>E coli</i> O157 H7	Environment	51	+	9129	2.23	
Ec 56	<i>E coli</i> O157 H7	Environment	36	+	5506	1.20	
Ec 57	<i>E coli</i> O157 H7	Clinical origin	48	+	3698	0.80	
Ec 58	<i>E coli</i> O157 H7	Clinical origin	36	+	5521	1.20	
Ec 59	<i>E coli</i> O157 H7	Clinical origin	39	+	4271	0.93	
Ec 61	<i>E coli</i> O157 H7	Clinical origin	57	+	6351	1.55	
EC 63	<i>E coli</i> O157 H7	Slaughterhouse environment	31	+	9389	2.18	
Ec 65	<i>E coli</i> O157 H7	Slaughterhouse environment	72	+	4371	0.95	
Ec 66	<i>E coli</i> O157 H7	Slaughterhouse environment	54	+	2746	0.60	
EC 67	<i>E coli</i> O157 H7	Slaughterhouse environment	15	+	7728	1.79	
EC 68	<i>E coli</i> O157 H7	Slaughterhouse environment	11	+	7343	1.70	
EC 69	<i>E coli</i> O157 H7	Feces	41	+	9182	2.13	
EC 70	<i>E coli</i> O157 H7	Clinical origin	11	+	7906	1.83	
EC 72	<i>E coli</i> O157 H7	Slaughterhouse environment	47	+	5138	1.19	
EC 73	<i>E coli</i> O157 H7	Collection	13	+	8786	1.04	
EC 74	<i>E coli</i> O157 H7	Feces of bovine	6	+	8773	1.98	
EC 75	<i>E coli</i> O157 H7	Clinical origin	45	+	8364	1.82	
EC 76	<i>E coli</i> O157 H7	Clinical origin	69	+	9233	2.01	
EC 77	<i>E coli</i> O157 H7	Clinical origin	63	+	7640	1.66	
EC 78	<i>E coli</i> O157 H7	Clinical origin	48	+	9459	2.06	
EC 79	<i>E coli</i> O157 H7	Clinical origin	57	+	9343	2.04	
EC 80	<i>E coli</i> O157 H7	Chopped meat of beef	54	+	9140	1.99	
EC 81	<i>E coli</i> O157 H7	Pork	39	+	9595	2.09	
EC 82	<i>E coli</i> O157 H7	Beef	21	+	9701	2.11	
EC 83	<i>E coli</i> O157 H7	Cider	45	+	9492	2.07	
MEU 29	<i>Ec</i> O157:H4	Clinical origin	16	+	6754	1.47	+
Ec 51	<i>E coli</i> O157 H7-	Feces	51	+	759	0.18	+
Ec 53	<i>E coli</i> O157 H7-	Environment	60	+	2792	0.68	+
Ec 54	<i>E coli</i> O157 H7-	Environment	18	+	854	0.20	+
Ec 60	<i>E coli</i> O157 H7-	Collection	57	+	7474	1.82	+
Ec 62	<i>E coli</i> O157 H7-	Environment	93	+	382	0.09	+

BPW : Buffered Peptone Water

RFV : Relative Fluorescence Value

TV : Test Value

INCLUSIVITY 2009

Extension study (specific protocol for raw milk cheese and environmental sample)

Strains		Origin	Enumeration of BPW (CFU/225 mL)	Result after 15h incubation in BPW + VCC	RFV	TV	
Ec 3	<i>E coli</i> O157 H7	Feces	6	+	9174	2.09	
Ec 5	<i>E coli</i> O157 H7	Collection	15	+	9289	2.12	
Ec 6	<i>E coli</i> O157 H7	Collection	51	+	9541	2.13	
Ec 7	<i>E coli</i> O157 H7	Environment	14	+	9941	2.22	
Ec 9	<i>E coli</i> O157 H7	Clinical origin	6	+	9887	2.25	
Ec 10	<i>E coli</i> O157 H7	Clinical origin	12	+	9554	2.18	
Ec 11	<i>E coli</i> O157 H7	Clinical origin	18	+	9689	2.21	
Ec 12	<i>E coli</i> O157 H7	Clinical origin	11	+	9693	2.21	
Ec 22	<i>E coli</i> O157 H7	ATCC 43888 (Human feces)	11	+	9401	2.14	
Ec 24	<i>E coli</i> O157 H7	Collection P1446	15	+	9171	2.09	
Ec 25	<i>E coli</i> O157 H7	Collection P1524	22	+	9618	2.19	
Ec 30	<i>E coli</i> O157 H7	Milk	6	+	9436	2.06	
Ec 31	<i>E coli</i> O157 H7	ATCC 43895 (hamburger)	17	+	9538	2.17	
Ec 40	<i>E coli</i> O157 H7	ATCC 35150 (human origin)	10	+	9700	2.21	
Ec 41	<i>E coli</i> O157 H7	ATCC 43894 (human origin)	8	+	9313	2.12	
Ec 42	<i>E coli</i> O157 H7	ATCC 43890 (Human feces)	9	+	9290	2.12	
Ec 43	<i>E coli</i> O157 H7	ATCC 43889 (human origin)	41	+	10060	2.29	
Ec 44	<i>E coli</i> O157 H7	ATCC 46197	24	+	9149	2.08	
Ec 45	<i>E coli</i> O157 H7	Collection	20	+	9596	2.19	
Ec 46	<i>E coli</i> O157 H7	Collection	14	+	9444	2.15	
Ec 47	<i>E coli</i> O157 H7	Collection	6	+	9393	2.14	
Ec 48	<i>E coli</i> O157 H7	Collection	10	+	9274	2.11	
Ec 49	<i>E coli</i> O157 H7	Collection	28	+	10400	2.37	
Ec 50	<i>E coli</i> O157 H7	Collection	34	+	9750	2.22	
Ec 52	<i>E coli</i> O157 H7	Clinical origin	32	+	10065	2.29	
Ec 55	<i>E coli</i> O157 H7	Environment	9	+	9222	2.10	
Ec 56	<i>E coli</i> O157 H7	Environment	12	+	9505	2.17	
Ec 57	<i>E coli</i> O157 H7	Clinical origin	10	+	9657	2.20	
Ec 58	<i>E coli</i> O157 H7	Clinical origin	54	+	2746	0.60	
Ec 59	<i>E coli</i> O157 H7	Clinical origin	38	+	10137	2.31	
Ec 61	<i>E coli</i> O157 H7	Clinical origin	10	+	9657	2.20	
EC 63	<i>E coli</i> O157 H7	Slaughterhouse environment	32	+	9972	2.27	
Ec 65	<i>E coli</i> O157 H7	Slaughterhouse environment	8	+	9702	2.21	
Ec 66	<i>E coli</i> O157 H7	Slaughterhouse environment	54	+	2746	0.60	
EC 67	<i>E coli</i> O157 H7	Slaughterhouse environment	45	+	10375	2.36	
EC 68	<i>E coli</i> O157 H7	Slaughterhouse environment	38	+	10137	2.31	
EC 69	<i>E coli</i> O157 H7	Feces	39	+	9923	2.26	
EC 70	<i>E coli</i> O157 H7	Clinical origin	34	+	10193	2.32	
EC 72	<i>E coli</i> O157 H7	Slaughterhouse environment	37	+	9596	2.19	
EC 73	<i>E coli</i> O157 H7	Collection	32	+	9928	2.26	
EC 74	<i>E coli</i> O157 H7	Feces of bovine	6	+	8773	1.98	
EC 75	<i>E coli</i> O157 H7	Clinical origin	45	+	9175	2.09	
EC 76	<i>E coli</i> O157 H7	Clinical origin	58	+	10664	2.43	
EC 77	<i>E coli</i> O157 H7	Clinical origin	38	+	9757	2.22	
EC 78	<i>E coli</i> O157 H7	Clinical origin	32	+	10025	2.28	
EC 79	<i>E coli</i> O157 H7	Clinical origin	43	+	10557	2.41	
EC 80	<i>E coli</i> O157 H7	Chopped meat of beef	52	+	10547	2.40	
EC 81	<i>E coli</i> O157 H7	Pork	64	+	10035	2.29	
EC 82	<i>E coli</i> O157 H7	Beef	47	+	9339	2.13	
EC 83	<i>E coli</i> O157 H7	Cider	45	+	9492	2.07	
MEU 29	<i>Ec</i> O157:H4	Clinical origin	16	+	6744	1.47	+
Ec 51	<i>E coli</i> O157 H7-	Feces	51	+	759	0.18	+
Ec 53	<i>E coli</i> O157 H7-	Environment	60	+	2792	0.68	+
Ec 54	<i>E coli</i> O157 H7-	Environment	18	+	857	0.20	+
Ec 60	<i>E coli</i> O157 H7-	Biomérieux	37	+	8728	1.99	+
Ec 62	<i>E coli</i> O157 H7-	Environment	93	+	382	0.09	+

BPW : Buffered Peptone Water

BPW + VCC : Buffered Peptone Water supplemented with Vancomycin, Cefixime and Cefsulodine

RFV : Relative Fluorescence Value

TV : Test Value

EXCLUSIVITY

Strains		Origin	Numeration of BPW (CFU/225 mL)	Result after 24 h incubation	RFV	TV
MEU 13	<i>E. coli</i> O139:K82	Clinical origin	1.4E+05	-	-3	0.00
MEU 15	<i>E. coli</i> O128:B12	Clinical origin	6.3E+05	-	-4	0.00
MEU 18	<i>E. coli</i> O26:H11	Clinical origin	1.0E+05	-	-3	0.00
MEU 24	<i>E. coli</i> O91:H21	Clinical origin	8.1E+04	-	-3	0.00
MEU 25	<i>E. coli</i> O121:H19	Clinical origin	2.3E+05	-	-4	0.00
MEU 26	<i>E. coli</i> O156	Clinical origin	3.0E+05	-	-4	0.00
MEU 27	<i>E. coli</i> O113:H21	Clinical origin	2.8E+05	-	-4	0.00
MEU 28	<i>E. coli</i> O153:H25	Clinical origin	4.8E+05	-	-6	0.00
MEU 30	<i>E. coli</i> O103:H2	Clinical origin	1.7E+05	-	-4	0.00
MEU 31	<i>E. coli</i> O26:H11	Clinical origin	1.5E+05	-	-5	0.00
MEU 32	<i>E. coli</i> O111:H8	Clinical origin	2.6E+05	-	-4	0.00
MEU 33	<i>E. coli</i> O111	Clinical origin	1.4E+05	-	-4	0.00
MEU 39	<i>E. coli</i> O111:B4	Clinical origin	1.4E+05	-	-5	0.00
MF 40	<i>E. coli</i> O103:H3	Clinical origin	1.0E+05	-	-2	0.00
MF 50	<i>E. coli</i> O111:B4	Clinical origin	1.4E+05	-	-3	0.00
EC 84	<i>E. coli</i> O55:H7	Collection CIP 105228	2.6E+05	-	-4	0.00
MF 54	<i>E. coli</i> O26:H11	Clinical origin	2.5E+05	-	-4	0.00
MEU 38	<i>E. coli</i> O26:H11	Clinical origin	3.2E+05	-	-4	0.00
MF 41	<i>E. coli</i> O111	Clinical origin	2.6E+05	-	-4	0.00
MF 42	<i>E. coli</i> O103	Clinical origin	1.8E+05	-	-4	0.00
MEU 34	<i>E. coli</i> O111	Clinical origin	2.2E+05	-	-4	0.00
MF 49	<i>E. coli</i> O26	Clinical origin	1.5E+05	-	-4	0.00
MEU 35	<i>E. coli</i> O111	Clinical origin	1.4E+05	-	-4	0.00
MEU 36	<i>E. coli</i> O111	Clinical origin	1.8E+05	-	-4	0.00
MEU 37	<i>E. coli</i> O111	Clinical origin	2.6E+05	-	-4	0.00
S145	<i>Salmonella</i> Urbana	Beef	1.8E+05	+	7598	1.66
S146	<i>Salmonella</i> Soeranga	Soya	3.0E+05	+	7432	1.62
S147	<i>Salmonella</i> Hilversar	Collection	1.4E+05	+	6945	1.51
Ec 13	<i>E. coli</i>	Parsley	5.5E+04	-	-4	0.00
Ec 15	<i>E. coli</i>	"Crêpinette"	9.8E+05	-	-4	0.00
Ec 16	<i>E. coli</i>	"Crêpineaux"	4.5E+04	-	-4	0.00
Ec 17	<i>E. coli</i>	Pork's(Pig) kidney	4.6E+05	-	-3	0.00
Ec 18	<i>E. coli</i>	Sausage meat	7.8E+05	-	-5	0.00
Ec 29	<i>E. coli</i>	Pork's liver	1.5E+05	-	-4	0.00
Ec 33	<i>E. coli</i>	Sausage of calf	1.6E+05	-	-4	0.00
Ec 34	<i>E. coli</i>	Reblochon	5.5E+05	-	-4	0.00
Ec 35	<i>E. coli</i>	Spinach	8.1E+05	-	-3	0.00
Ec 39	<i>E. coli</i>	Tomme cheese	6.3E+05	-	-3	0.00
Ec 20	<i>E. coli</i>	Tomato	6.4E+05	-	-4	0.00
Ec 21	<i>E. coli</i>	Celeriac in remoulade dressing	9.6E+04	-	-4	0.00
Ec 27	<i>E. coli</i>	Vanilla cream	3.5E+05	-	-4	0.00
Ec 38	<i>E. coli</i>	Chipolata	1.8E+05	-	-4	0.00
Complementary strains						
CIT 23	<i>Citrobacter freundii</i>	Vegetables	7.4E+04	-	-3	0.00
CIT 24	<i>Citrobacter freundii</i>	Meat product	6.1E+04	-	7	0.00
CIT 26	<i>Citrobacter freundii</i>	Fish	5.0E+04	-	-4	0.00
CIT 27	<i>Citrobacter freundii</i>	Milk	1.0E+05	-	-2	0.00
CIT 52	<i>Citrobacter diversus</i>	Dried herbs	1.3E+05	-	-3	0.00
HA 31	<i>Hafnia alvei</i>	Minced meat	1.4E+05	-	-4	0.00
HA 33	<i>Hafnia alvei</i>	Pork's spinal column	1.3E+05	-	-3	0.00
ESC 15	<i>Escherichia hermannii</i>	Collection	7.4E+04	-	-2	0.00

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