

Summary of Results

External Quality Assessment for Food Microbiology

Food Law Scheme

Distribution Number: FL11

Sample Numbers: FL031, FL032 & FL033

Distribution Date:	January 2010
Results Due:	29 January 2010
Report Date:	19 February 2010
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Contents:

	Page number(s)
Sample: FL031	2
Sample: FL032	3
Sample: FL033	4 – 5
Fig. 1 Scatter graph	6
Fig. 2 Scatter graph	7
Fig. 3 Scatter graph	8
Performance assessment	9
General Information	10 – 11

This Scheme provides external quality assessment samples for laboratories that examine foods products in accordance with European legislation specified in Regulation (EC) 1441/2007 (which amended Regulation (EC) No. 2073/2005 and came into force on 25 December 2007) Microbiological Criteria for Foodstuffs associated with Regulation (EC) 852/2004

If you require further information on the scheme, samples, quality control, how results are assessed, how scores are allocated, interpretation of low scores and performance assessments please refer to the 'General Information Section' on pages 10 – 11.

Participants are reminded that the purpose of scoring is to draw attention to incorrect or outlying results. Participants who report outlying results for enumerations on single occasions only should not be alarmed, although they should still assess the reason(s) for the outlying result.

All participants are reminded that incorrect or incomplete identification of pathogens from food samples could have serious public health implications. Similarly, the levels of micro-organisms reported in the sample may affect the subsequent outcome for the product.

If you experienced problems with these examinations please refer to the 'Troubleshooting' PDF at <http://www.hpa.org.uk/eqa/foodlaw>

Please contact FEPTU staff for advice and information. Contact details are provided below.

Information about other Health Protection Agency functions and services is available from the web-site www.hpa.org.uk

Contact Details:

Repeat samples	Carmen Gomes or Nic Day	Tel: +44 (0)20 8327 7119
Data analysis	Heena Shah or Dr Nicola Lang	Fax: +44 (0)20 8200 8264
Microbiological advice	Dr Nicola Lang or Julie Russell	E-mail: foodeqa@hpa.org.uk
General comments and complaints	Dr Nicola Lang or Julie Russell	
Scheme consultants	Melody Greenwood Dr Christine Little	

Sample: FL031

Sample Details: Ready-to-eat macaroni cheese dish placed on the market during the shelf-life of the product.

Sample Request: Test to determine whether this sample complies with the **food safety criteria** stipulated in Commission Regulation (EC) No. 2073/2005 as amended by 1441/2007.

Contents:

- *Bacillus circulans* (10⁵)
- *Serratia liquefaciens* (10⁵)
- *Citrobacter freundii* (10⁵)

All levels are presented as colony forming units (cfu) per ml reconstituted sample

Required Examinations: *Listeria monocytogenes* enumeration only

Examination 1 Expected Results:

Examination 1	Expected Result	Your Result	Your score
Name of examination	<i>L.monocytogenes</i> enumeration		
Stipulated method	ISO 11290-2*		
Amount of sample examined	1/10 suspension		
No. of samples from a batch required for compliance	5 (n = 5)		
Expected range	<10 cfu per g		
Limits for compliance	m = 100 cfu/g; M = 100 cfu/g (c = 0)		
Conclusion about the batch from result	Your conclusion has been scored in relation to your reported result		

* The most recent edition of the standard should be used

Results returned

Total score out of

Examination 1 Comments on Performance:

<i>L.monocytogenes</i>	Total participants enumerating for <i>L.monocytogenes</i>	34
	Participants reporting correctly the absence of <i>L.monocytogenes</i>	34
Total sent sample		36
Non-returns		2

Examination 1 Specific Comments:

- This sample required examination in compliance with the **food safety criteria**. However, **three** participants examined for *Salmonella* sp.; this test is not required to determine compliance with the **food safety criteria**.

Sample: FL032

Sample Details: A ready-to-eat pre-cut fruit sample, taken during the manufacturing process.

Sample Request: Test to determine whether this sample complies with the **process hygiene criteria** stipulated in Commission Regulation (EC) No. 2073/2005 as amended by 1441/2007.

Contents:

- *Escherichia coli* (10^5)
- *Enterobacter aerogenes* (10^5)

All levels are presented as colony forming units (cfu) per ml reconstituted sample

Required Examinations: *E.coli* enumeration only

Examination 1 Expected Results:

Examination 1	Expected Result	Your Result	Your score
Name of examination	<i>E.coli</i> enumeration		
Stipulated method	ISO 16649 1 or 2 (enumeration)*		
Amount of sample examined	1/10 suspension		
No. of samples from a batch required for compliance	5 (n = 5)		
Expected range	$1.3 \times 10^5 - 1.3 \times 10^6$ cfu per g		
Limits for compliance	m = 100 cfu/g; M = 1000 cfu/g (c = 2)		
Conclusion about the batch from result	Your conclusion has been scored in relation to your reported result		

* The most recent edition of the standard should be used

Results returned

Total score out of

Examination 1 Comments on Performance:

<i>E.coli</i>	Total participants enumerating for <i>E.coli</i>	33
Refer to Fig. 2 (page 8)	Participants reporting a definitive count	29
	<ul style="list-style-type: none"> • ISO 16649-1 (4) • ISO 16649-2 (22) • ISO 16649 used but part 1 or 2 not specified (1) • Spread plate method (4) • MPN method (1) • Other (1) 	
	Participants reporting a censored value	4 (4 high)
	Participants' median	3.9×10^5 cfu g ⁻¹ (5.60 log ₁₀)
	No. of outlying counts	2 (2 low)
	Participants' mean	3.2×10^5 cfu g ⁻¹ (5.50 log ₁₀)
	Standard deviation of participants' results	0.15 cfu g ⁻¹
	FEPTU QC medians	
	<ul style="list-style-type: none"> • ISO 16649-1 • ISO 16649-2 	3.8x10 ⁵ cfu g ⁻¹ (5.55 log ₁₀) 2.0x10 ⁵ cfu g ⁻¹ (5.30 log ₁₀)
Total sent sample		36
Non-returns		2

Sample: FL033

Sample Details: A sample of ready-to-eat cooked peeled prawns taken at the end of the manufacturing process.

Sample Request: Test to determine whether this sample complies with the **process hygiene criteria** stipulated in Commission Regulation (EC) No. 2073/2005 as amended by 1441/2007.

Contents:

- *Escherichia coli* (10^5)
- *Staphylococcus aureus* (lecithinase negative) (10^2)
- *Staphylococcus epidermidis* (10^3)
- *Citrobacter freundii* (10^5)
- *Kocuria kristinae* (10^5)

All levels are presented as colony forming units (cfu) per ml reconstituted sample

Required Examinations: *E.coli* and coagulase-positive staphylococci enumerations

Examination 1 Expected Results:

Examination 1	Expected Result	Your Result	Your score
Name of examination	<i>E.coli</i> enumeration		
Stipulated method	ISO 16649-3* (MPN)		
Amount of sample examined	1/10 suspension		
No. of samples from a batch required for compliance	5 (n = 5)		
Expected range	69 – 2.7×10^5 MPN per g		
Limits for compliance	m = 1; M = 10 (c = 2)		
Conclusion about the batch from result	Your conclusion has been scored in relation to your reported result		

* The most recent edition of the standard should be used

Results returned

Total score out of

Examination 1 Comments on Performance:

<i>E.coli</i>	Total participants enumerating for <i>E.coli</i>	32
Refer to Fig. 2 (page 8)	Participants reporting a definitive count	16
	• ISO 16649-3 (28)	
	• ISO 16649-2 (2)	
	• ISO 16649-1 (1)	
	• Petrifilm (1)	
	Participants reporting a censored value	16 (1 low / 15 high)
	Participants' median	$4.3 \times 10^3 \text{ g}^{-1}$ (3.65 log ₁₀)
	Participants' mean	$3.5 \times 10^3 \text{ g}^{-1}$ (3.55 log ₁₀)
	Standard deviation of participants' results	0.60 g ⁻¹
	FEPTU QC median (ISO 16649-3)	$4.3 \times 10^3 \text{ g}^{-1}$ (3.65 log ₁₀)
Total sent sample		36
Non-returns		2

Examination 1 Specific Comments:

- The FEPTU QC median is 4.3×10^3 per g, not 43 per g as reported in the letter of intended results dated 1 February 2010. An amended version of the intended results report is available in the website www.hpa.org.uk/eqa/foodlaw

Sample: FL033

Sample Details: A sample of ready-to-eat cooked peeled prawns taken at the end of the manufacturing process.

Sample Request: Test to determine whether this sample complies with the **process hygiene criteria** stipulated in Commission Regulation (EC) No. 2073/2005 as amended by 1441/2007.

Contents:

- *Escherichia coli* (10^5)
- *Staphylococcus aureus* (lecithinase negative) (10^2)
- *Staphylococcus epidermidis* (10^3)
- *Citrobacter freundii* (10^5)
- *Kocuria kristinae* (10^5)

All levels are presented as colony forming units (cfu) per ml reconstituted sample

Required Examinations: *E.coli* and coagulase-positive staphylococci enumerations

Examination 2 Expected Results:

Examination 2	Expected Result	Your Result	Your score
Name of examination	Coagulase-positive staphylococci enumeration		
Stipulated method	ISO 6888 – 1 or 2*		
Amount of sample examined	1/10 suspension		
No. of samples from a batch required for compliance	5 (n = 5)		
Expected range	1.4×10^2 – 1.4×10^3 cfu per g		
Limits for compliance	m = 100 cfu/g; M = 1000 cfu/g (c = 2)		
Conclusion about the batch from result	Your conclusion has been scored in relation to your reported result		

* The most recent edition of the standard should be used

Results returned

Total score out of

Examination 2 Comments on Performance:

Coagulase-positive staphylococci	Total participants enumerating for coagulase-positive staphylococci	34
Refer to Fig. 3 (page 9)	Participants reporting a definitive count	32
	<ul style="list-style-type: none"> • ISO 6888-1: Baird Parker Medium (24) • ISO 6888-2: Rabbit Plasma Fibrinogen agar (9) • Not stated (1) 	
	Participants reporting a censored value	2 (2 low)
	Participants' median	4.3×10^2 cfu g ⁻¹ (2.65 log ₁₀)
	No. of outlying counts	1 (1 low)
	Participants' mean	4.0×10^2 cfu g ⁻¹ (2.60 log ₁₀)
	Standard deviation of participants' results	0.13 cfu g ⁻¹
	FEPTU QC medians	
	<ul style="list-style-type: none"> • Baird Parker Medium • Rabbit Plasma Fibrinogen agar 	3.7x10 ² cfu g ⁻¹ (2.55 log ₁₀) 3.9x10 ² cfu g ⁻¹ (2.60 log ₁₀)
Total sent sample		36
Non-returns		2

Fig. 1: FL032 - *E.coli* results

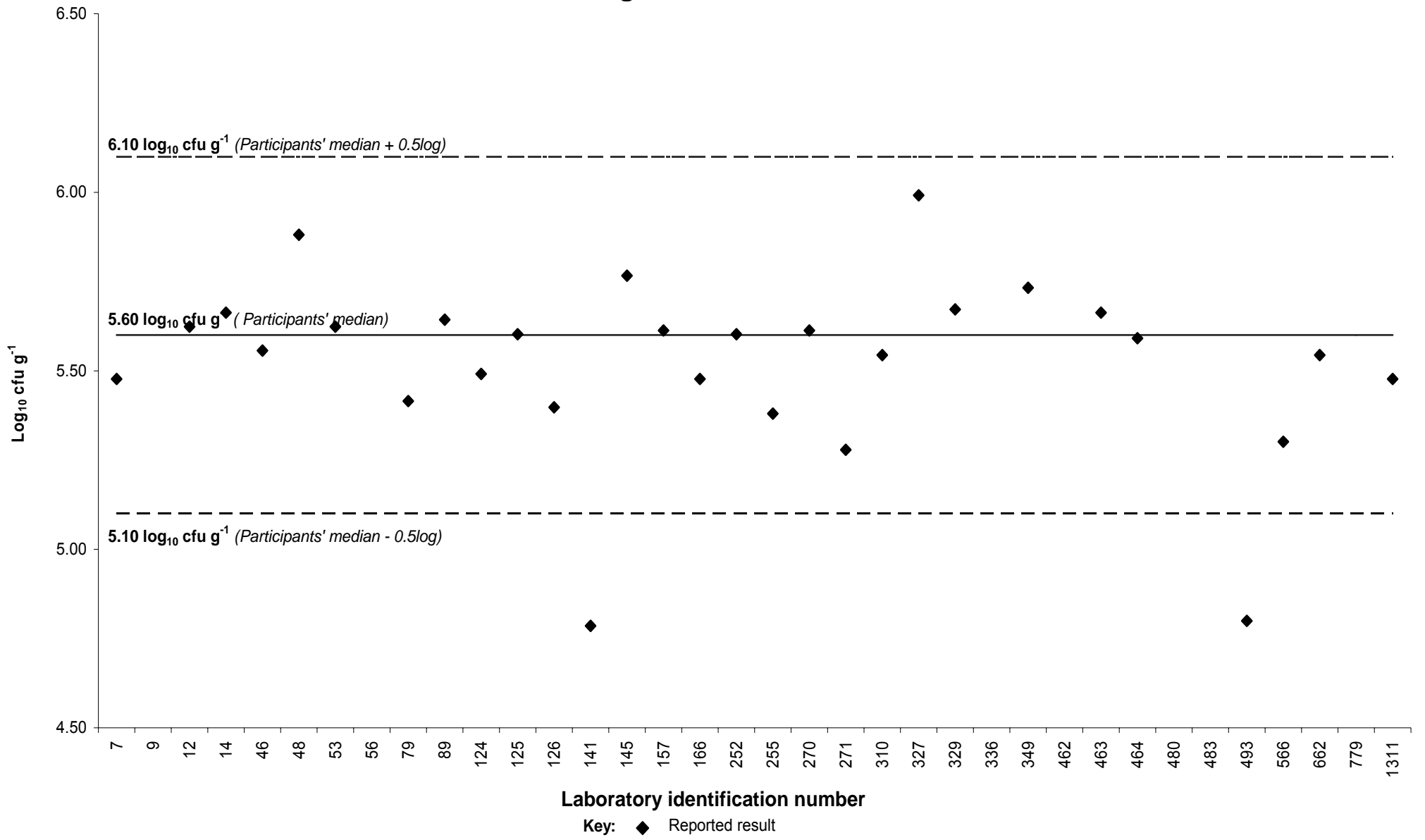


Fig. 2: FL033 - *E.coli* results

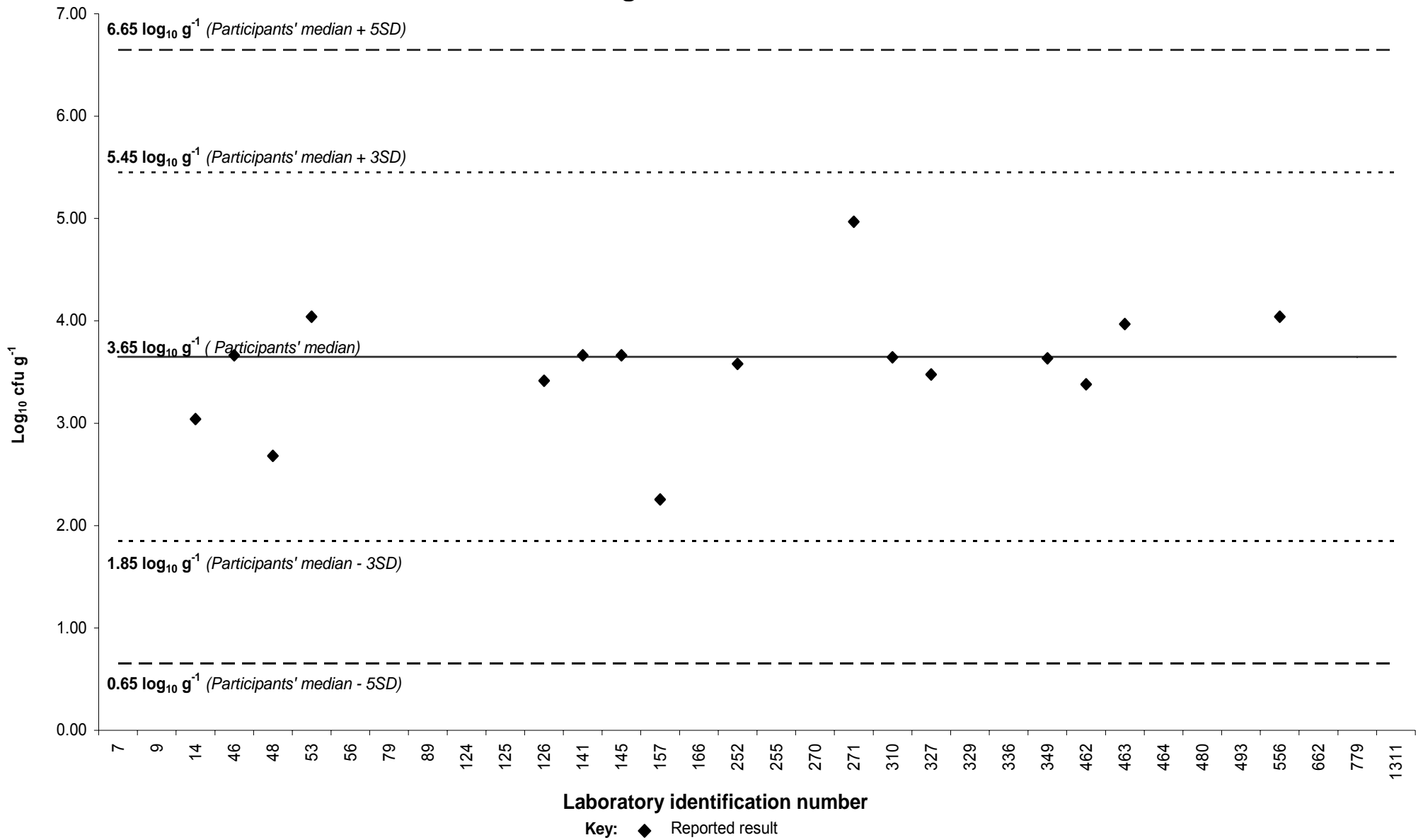
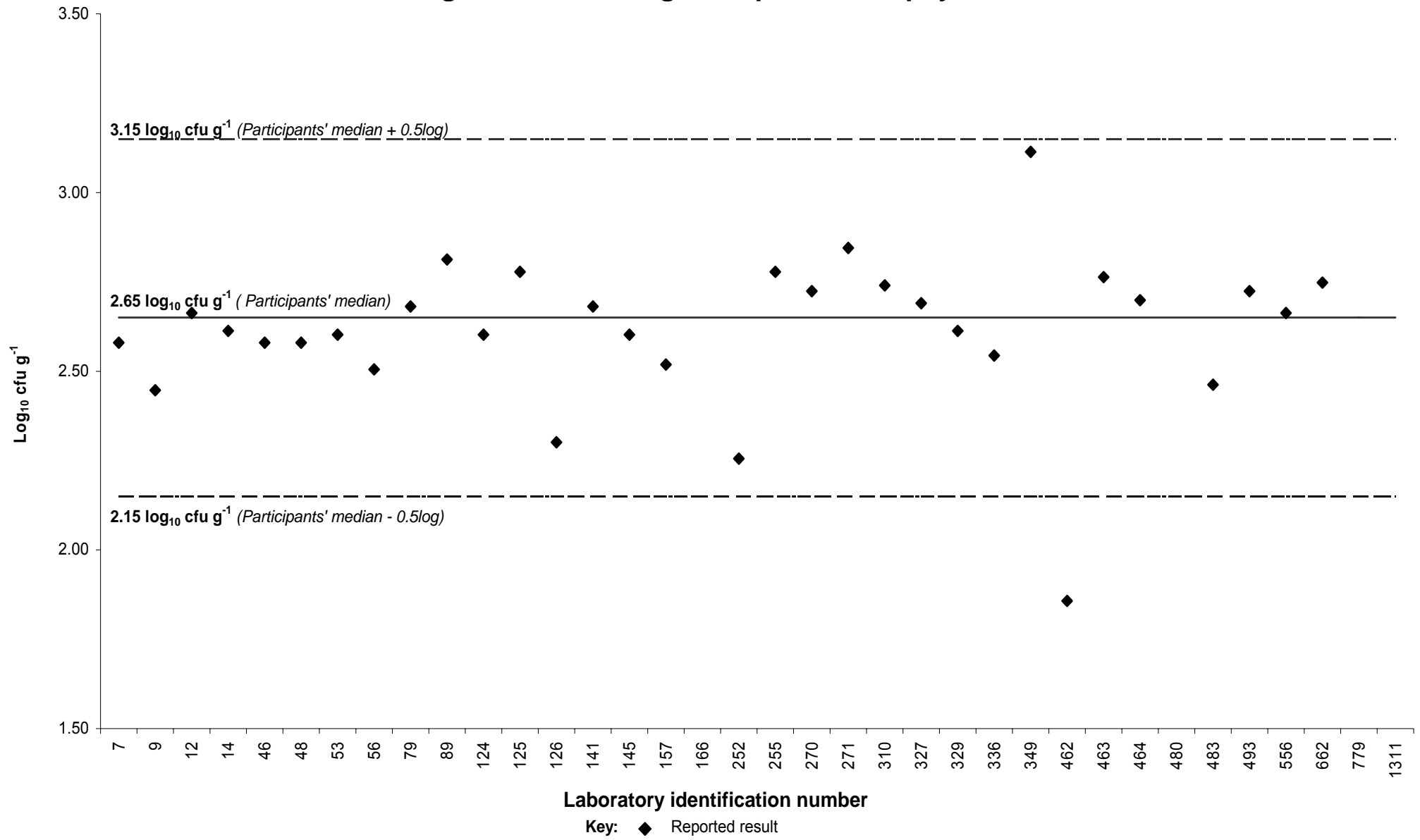


Fig. 3: FL033 - Coagulase-positive staphylococci results

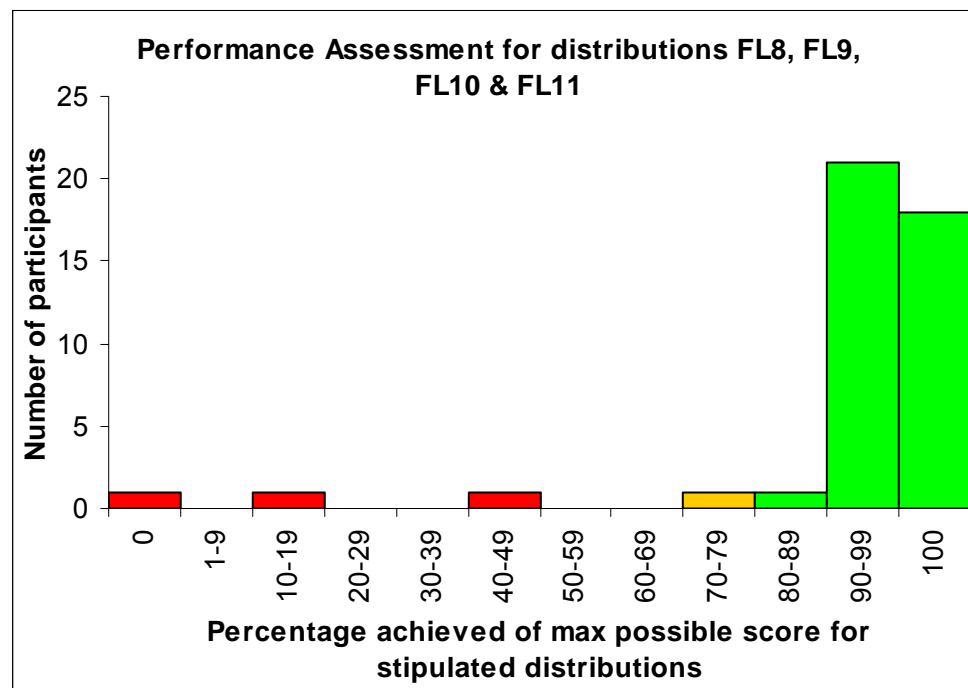


Performance Assessment Sheet

Performance assessments are designed to identify laboratories with on-going problems with their examinations and are undertaken after every distribution. Scores are allocated to results reported for every sample to help assess participants' performance.

Cumulative scores are calculated for every participant for all examinations for the current and previous three distributions. Participants' cumulative scores for each of the examinations are compared with the maximum possible scores after every distribution.

Distribution	Sample	Examination	Your score	Your %
FL8	FL022	<i>L.monocytogenes</i>		
	FL023	<i>L.monocytogenes</i>		
	FL023	<i>Salmonella</i> sp.		
	FL024	<i>E.coli</i>		
	FL024	Coagulase-positive staphylococci		
FL9	FL025	<i>Salmonella</i> sp.		
	FL026	Aerobic colony count		
	FL026	<i>E.coli</i>		
	FL027	<i>Salmonella</i> sp.		
	FL027	Aerobic colony count		
	FL027	Enterobacteriaceae		
FL10	FL028	<i>L.monocytogenes</i>		
	FL028	<i>Salmonella</i> sp.		
	FL029	Coagulase-positive staphylococci		
	FL030	<i>E.coli</i>		
FL11	FL031	<i>L.monocytogenes</i>		
	FL032	<i>E.coli</i>		
	FL033	<i>E.coli</i>		
	FL033	Coagulase-positive staphylococci		



Performance Assessment Comment:

Laboratories that achieve <70% of the maximum possible score are likely to be experiencing significant problems with their tests and are advised to a) refer to the relevant sample reports for specific comments b) refer to the hpa website (www.hpa.org.uk/eqa/foodlaw) c) contact the organisers for advice.

General Information

Scheme: Food Law

Sample Type: LENTICULE discs

Safety Data Sheet: Contact the Organisers or www.hpa.org.uk/eqa/foodlaw

Examinations: In accordance with the EC Microbiological Criteria for Foodstuffs (EC) Regulation 2073/2005 amended by (EC) 1441/2007.

Enumerations:

Aerobic colony count

B.cereus

Coagulase-positive staphylococci

E.coli

Enterobacteriaceae

L.monocytogenes

Presence/absence:

Listeria monocytogenes

Salmonella spp.

Cronobacter sakazakii

Most Probable Number (MPN) Estimations:

Enterobacteriaceae

Escherichia coli

Quality Control:

Minimum of 10 samples, selected randomly from the batch and examined for the test parameters as indicated on the request/report forms, using the relevant method as stipulated in Annex 1 of Reg 1441/2007.

Results Analyses and Scores:

Scores are allocated for **each examination** as follows:

	Expected result	Score allocated
Name of examination	Correct examination	1
Stipulated method	Not scored	
Amount of sample examined	Not scored	
No. of samples from a batch required for compliance	Correct value	1
Expected range	Correct presence/absence or within range* <i>Outlier</i>	3 2 or 0
Limits for compliance	Not scored	
Conclusion about the batch from result	Correct conclusion Partial conclusion e.g. about sample not batch No conclusion or misleading conclusion	2 1 0
Return result		1
Max possible score		8 points

*see scoring of enumerations

Scoring of enumerations

(Aerobic colony count (ACC), *B.cereus*, coagulase-positive staphylococci, *E.coli*, Enterobacteriaceae, *L.monocytogenes*)

The expected range for enumerations are determined from the median result reported by participants' and takes into account the following criteria: (1) median \pm 2 MAD (2) median \pm 3 MAD and (3) median \pm 0.5 log₁₀ units.

If the range in (1) and/or (2) are less than the median \pm 0.5 log₁₀ units then the expected range is extended as described in (3). Using these criteria participants' results are defined as follows:

		Points
Expected range	within the range according to criteria (1)	3
Outlying results (1)	within the range of criteria (2) but not within criteria (1)	2*
Outlying results (2)	outside the range of criteria (2)	0*

*If interpretation of an outlying result affects the outcome for the product in relation to the Directive standards/guidelines then the lower score indicated is allocated.

MAD is the median absolute deviation from the median value and is a robust estimate of the standard deviation (SD). It is only possible to calculate a precise estimate of the SD if more than 20 participants report enumeration results.

If a low censored value (< value) arises by chance because the target organism(s) or group is present at a low level then the maximum score of **three** points is allocated.

Scoring of MPN values

The expected range for enterobacteriaceae MPN result is determined from the median result reported by participants' \pm 3 standard deviations (SD). Outlying results are defined as follows:

		Points
Expected range	median \pm 3 SD	3
Outlying results (1)	median \pm > 3 \pm \leq 5 SD	2*
Outlying results (2)	median \pm > 5 SD	0*

*If interpretation of an outlying result affects the outcome for the product in relation to the Directive standards/guidelines then the lower score indicated is allocated.

If an incorrect dilution or incorrect MPN (due to mis-reading of the MPN table) is reported then only **one** point is allocated.

If the sample contains low level of Enterobacteriaceae the limits for low outlying counts may fall below the limit of detection for the test, e.g. <3 or 0.3 per g. Therefore, the limits for low outlying counts cannot be applied, i.e. <3 SD or <5 SD.

Scoring of results for presence/absence tests

(*L.monocytogenes*, *Salmonella* spp. and *Enterobacter sakazakii*)

	Points
Fully correct result	3
Incorrect species/serogroup identification	2
False positive or false negative result	0

Participants who do not return report forms or return report forms after the specified return date (late results) are allocated a score of zero.

Results charts:

Scatter graphs summarising participants' results are included where appropriate.

Performance Analyses:

- Designed to identify laboratories with ongoing problems with their examinations
- Will be undertaken after four distributions

Accreditation: The HPA Food Law EQA Scheme is accredited by the United Kingdom Accreditation Service (UKAS) to ISO/IEC Guide 43-1:1997 through assessment against ILAC G13: 2007.



0006

End of report