



Summary of Results

External Quality Assessment of Food Microbiology Non-Pathogen Scheme

Distribution Number: NP073

Sample Numbers: NP0201, NP0202,

Distribution Date:	January 2023
Results Due:	17 March 2023
Report Date:	22 March 2023
Samples prepared and quality control tested by:	Divya George Nafeesa Hussain Margaret Njenga Zak Prior
Data analysed by:	Joanna Donn Nita Patel
Report compiled by:	Joanna Donn Nita Patel
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For general information about the scheme please refer to:

Scheme Guide:

<https://www.gov.uk/government/publications/food-and-water-proficiency-testing-schemes-scheme-guide>

For more specific information about results assessments, scoring systems, statistics, and guidance on analysing your results for the proficiency testing samples please refer to:

Guide to Scoring and Statistics:

<https://www.gov.uk/government/publications/food-and-water-proficiency-testing-schemes-scoring-systems-and-statistics>

General guidance for z-scores:

Participants' enumeration results are converted into z-scores using the following formula:

$$Z = \frac{(X_i - X_{pt})}{\sigma_{pt}}$$

X_i = participants' result (expressed as a log₁₀ value)
 X_{pt} = assigned value (participants' consensus median (expressed as a log₁₀ value))
 σ_{pt} = the fixed standard deviation for the examination (calculated by FEPTU)

The σ_{pt} -value expresses the acceptable difference between the individual participant's result and the participants' consensus median. The σ_{pt} -value used for calculating z-scores for all parameters in the Non-Pathogen Scheme is 0.35. A guide to interpreting z-scores follows, although laboratories must interpret their scores in the context of their own laboratory situation.

z = -1.99 to +1.99 **satisfactory**
z = -2 to -2.99 or +2 to +2.99 **questionable**
z = < -3.00 or > +3.00 **unsatisfactory**

It is usually recommended that z-scores exceeding ± 2 are investigated to establish the possible cause. As a general rule, UKHSA recommends that all questionable and unsatisfactory results are investigated.

FEPTU Quality control: To demonstrate homogeneity of the sample, a minimum of 10 freeze-dried vials, selected randomly from a batch, are tested in duplicate for parameters requiring enumeration

To demonstrate stability of the sample, a minimum of six vials, selected randomly from a batch, are examined throughout the distribution period for enumeration parameters

FEPTU results are determined using methods based on ISO methods and are included in the 'intended results' letters which provide guidance for participants regarding the assigned values.

The FEPTU results are used for guidance in the preliminary intended results notification, letters are posted on the website immediately after every distribution; electronic notification of their availability is sent to all participants

Refer to section 17.0 of the Scheme Guide if you have experienced difficulties with any of the examinations.

<https://www.gov.uk/government/publications/food-and-water-proficiency-testing-schemes-scheme-guide>

All participants are reminded that reporting an incorrect or incomplete identification of pathogen 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.

Please contact FEPTU staff for advice and information:

Repeat samples	Carmen Gomes or Kermin Daruwalla	Tel: +44 (0)20 8327 7119
Data Analysis	Nita Patel	Fax:
Microbiological advice	Nita Patel or Zak Prior	Email: foodeqa@ukhsa.gov.uk
General comments and complaints	Nita Patel or Zak Prior	FEPTU's website
Scheme consultants	Melody Greenwood	
Scheme Co-ordinator	Nita Patel	

Accreditation: UKHSA Food EQA Scheme for Non-pathogen is accredited by the United Kingdom Accreditation Service (UKAS) to ISO/IEC 17043:2010.



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Sample: NP0201

Contents:

Pseudomonas aeruginosa (2.9x10⁴) (NCTC 10332), *Enterobacter cloacae* (3.0x10⁴) (NCTC 10005),
Providencia rettgeri (2.3x10⁴) (NCTC 7475), *Escherichia coli* (2.2x10⁴) (wild strain), *Enterococcus faecalis*
(2.4x10³) (wild strain), *Lactobacillus paracasei* (3.4x10⁵) (wild strain)

Expected Results:

All counts are expressed as log₁₀ colony forming units (cfu) per mL reconstituted sample.
The fixed standard deviation value (*Opt* value) used for calculation of the z-scores is **0.35** for all parameters.

Parameter	<i>Pseudomonas</i> spp.	Yeasts	Moulds	Coliforms	<i>Enterobacteriaceae</i>	<i>Escherichia coli</i>	Enterococci	Lactic acid bacteria	Colony count 30°C
FEPTU median	2.7x10 ⁴ (4.43 log ₁₀)	0	0	5.2x10 ⁴ (4.71 log ₁₀)	7.5x10 ⁴ (4.88 log ₁₀)	2.2x10 ⁴ (4.34 log ₁₀)	2.4x10 ³ (3.39 log ₁₀)	3.4x10 ⁵ (5.53 log ₁₀)	2.8x10 ⁵ (5.45 log ₁₀)
No. results returned	35	53	53	36	45	41	24	33	47
Assigned value (Participants' median)	5.4x10 ³ (3.73 log ₁₀)	0	0	2.4x10 ⁴ (4.37 log ₁₀)	2.8x10 ⁴ (4.45 log ₁₀)	1.5x10 ⁴ (4.18 log ₁₀)	3.0x10 ³ (3.48 log ₁₀)	2.8x10 ⁵ (5.45 log ₁₀)	3.0x10 ⁵ (5.48 log ₁₀)
Uncertainty of assigned value (Ux)	0.06	N/A	N/A	0.04	0.07	0.07	0.05	0.04	0.04
Standard deviation*	0.28	N/A	N/A	0.21	0.35	0.29	0.2	0.18	0.24
Expected Range	1.5x10 ³ - 2.0x10 ⁴	N/A	N/A	7.5x10 ³ - 7.5x10 ⁴	5.5x10 ³ - 1.4x10 ⁵	3.9x10 ³ - 5.8x10 ⁴	9.5x10 ² - 9.5x10 ³	8.9x10 ⁴ - 8.9x10 ⁵	9.5x10 ⁴ - 9.5x10 ⁵
Participants' mean	5.7x10 ³ (3.76 log ₁₀)	N/A	N/A	2.2x10 ⁴ (4.34 log ₁₀)	2.8x10 ⁴ (4.44 log ₁₀)	1.6x10 ⁴ (4.19 log ₁₀)	2.7x10 ³ (3.44 log ₁₀)	2.9x10 ⁵ (5.45 log ₁₀)	2.9x10 ⁵ (5.46 log ₁₀)
No of outlying counts	4	N/A	N/A	3	4	1	4	3	7
False positives		7	1						
False negatives	5			2	0	0	0	1	0
Your result									
Score for performance assessment									
Z-score									
Analyst 2 Result									
Analyst 2 Z-score									
Analyst 3 Result									
Analyst 3 Z-score									

* Robust S* based on median absolute deviation about the participant's median (*MADe*)

Total sent samples	79
Not examined	19
Non returns	1

Sample: NP0202

Contents:

Pseudomonas fluorescens (1.6x10⁴) (wild strain), *Penicillium* sp. (2.2x10³) (wild strain), *Citrobacter freundii* (2.0x10⁴) (wild strain), *Escherichia coli* (9.7x10³) (wild strain), *Aeromonas hydrophila* (1.6x10³) (wild strain), *Enterococcus casseliflavus* (5.7x10³) (wild strain), *Lactobacillus plantarum* (1.9x10⁵) (wild strain)

Expected Results:

All counts are expressed as log₁₀ colony forming units (cfu) per mL reconstituted sample.
The fixed standard deviation value (*Opt* value) used for calculation of the z-scores is **0.35** for all parameters.

Parameter	<i>Pseudomonas</i> spp.	Yeasts	Moulds	Coliforms	<i>Enterobacteriaceae</i>	<i>Escherichia coli</i>	Enterococci	Lactic acid bacteria	Colony count 30°C
FEPTU median	1.6x10 ⁴ (4.21 log ₁₀)	0	2.2x10 ³ (3.35 log ₁₀)	2.8x10 ⁴ (4.45 log ₁₀)	3.8x10 ⁴ (4.58 log ₁₀)	8.3x10 ³ (3.92 log ₁₀)	5.9x10 ³ (3.77 log ₁₀)	2.0x10 ⁵ (5.29 log ₁₀)	2.2x10 ⁵ (5.34 log ₁₀)
No. results returned	43	69	69	36	45	41	24	40	48
Assigned value (Participants' median)	8.7x10 ³ (3.94 log ₁₀)	0	2.4x10 ³ (3.38 log ₁₀)	1.4x10 ⁴ (4.15 log ₁₀)	1.3x10 ⁴ (4.11 log ₁₀)	9.4x10 ³ (3.97 log ₁₀)	4.6x10 ³ (3.67 log ₁₀)	1.6x10 ⁵ (5.2 log ₁₀)	2.0x10 ⁵ (5.3 log ₁₀)
Uncertainty of assigned value (Ux)	0.04	N/A	0.02	0.06	0.07	0.05	0.04	0.02	0.03
Standard deviation*	0.22	N/A	0.15	0.33	0.39	0.26	0.19	0.13	0.19
Expected Range	2.8x10 ³ - 2.8x10 ⁴	N/A	7.6x10 ² - 7.6x10 ³	3.1x10 ³ - 6.3x10 ⁴	2.1x10 ³ - 7.9x10 ⁴	2.8x10 ³ - 3.1x10 ⁴	1.5x10 ³ - 1.5x10 ⁴	5.1x10 ⁴ - 5.1x10 ⁵	6.3x10 ⁴ - 6.3x10 ⁵
Participants' mean	8.8x10 ³ (3.95 log ₁₀)	N/A	2.5x10 ³ (3.39 log ₁₀)	1.4x10 ⁴ (4.16 log ₁₀)	1.4x10 ⁴ (4.16 log ₁₀)	8.8x10 ³ (3.94 log ₁₀)	4.7x10 ³ (3.68 log ₁₀)	1.6x10 ⁵ (5.21 log ₁₀)	2.0x10 ⁵ (5.29 log ₁₀)
No of outlying counts	4	N/A	6	3	3	4	5	2	7
False positives		2							
False negatives	3		4	1	0	0	1	0	0
Your result									
Score for performance assessment									
Z-score									
Analyst 2 Result									
Analyst 2 Z-score									
Analyst 3 Result									
Analyst 3 Z-score									

* Robust S* based on median absolute deviation about the participant's median (*MADe*)

Total sent samples	79
Not examined	2
Non returns	1

Performance Assessment Sheet

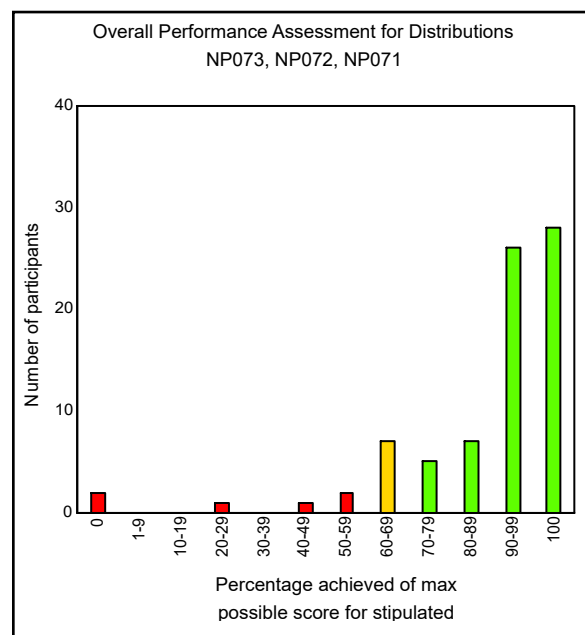
Distribution	Sample	Presumptive <i>Pseudomonas</i> spp. score	Yeasts score	Moulds score	Coliform score	Enterobacteriaceae score	<i>Escherichia coli</i> score	Enterococci score	Lactic acid bacteria score	Aerobic Colony Count (30°C) score
NP073	NP0201									
	NP0202									
NP072	NP0199									
	NP0200									
NP071	NP0197									
	NP0198									
Total maximum possible score										
Total percentage										

Performance Assessment Comment:

Performance assessments are designed to alert participants to on-going problems with their examinations and are provided after every distribution. Scores are allocated to results reported for every parameter, for every sample to help assess performance.

Cumulative scores are calculated for the current and previous **two** distributions for the Non Pathogen Scheme. Participants' cumulative scores for each of the examinations are compared with the maximum possible scores after every distribution.

Your overall performance with the enumerations in the non pathogen proficiency testing samples for the current and last two distributions is collated in the chart to the right.

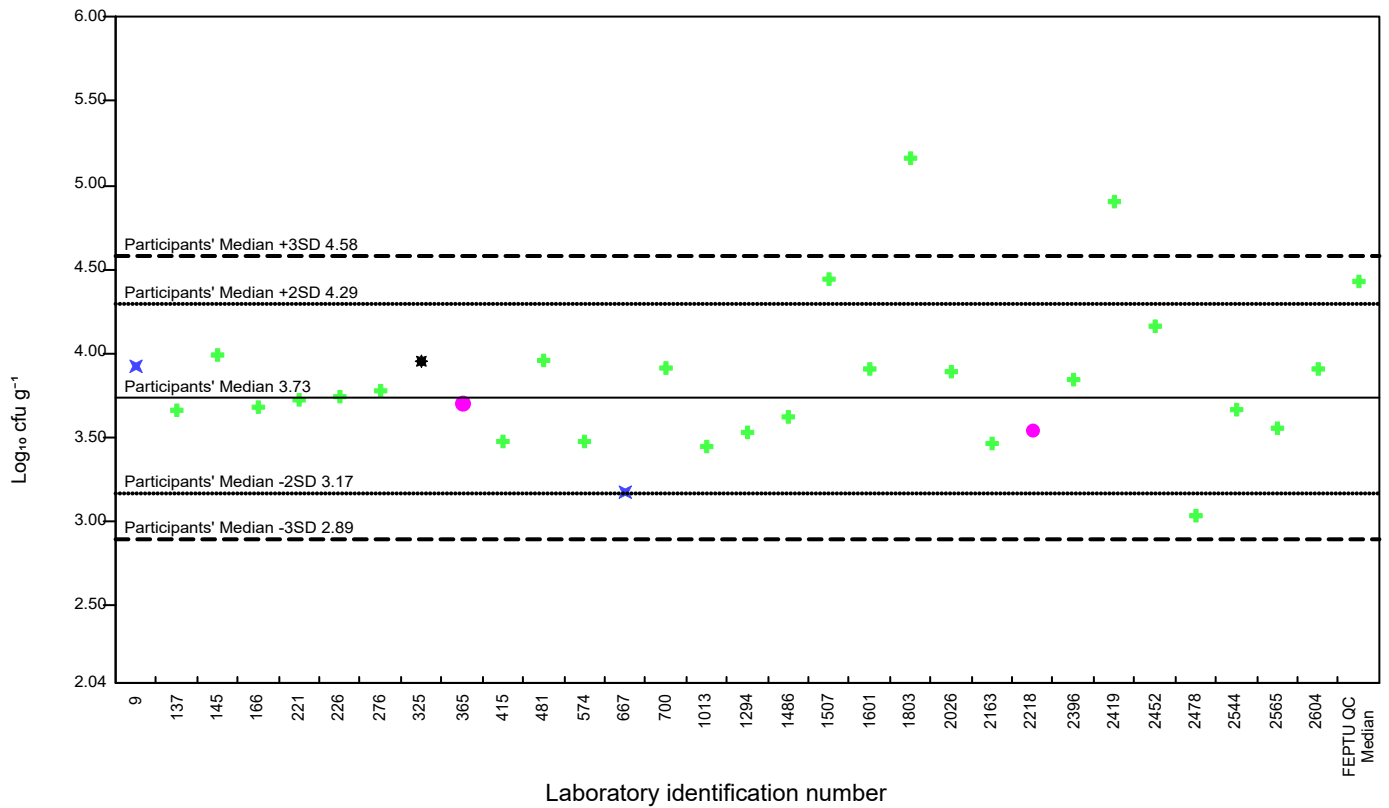


Performance Assessment Comment:

Laboratories that achieve less than 70% of the maximum possible score are likely to be experiencing significant problems with their examinations and are advised to:

- refer to the relevant distribution reports for sample-specific comments
- refer to the website guidance documents:
<https://www.gov.uk/government/collections/external-quality-assessment-ega-and-proficiency-testing-pt-for-food-water-and-environmental-microbiology>
- contact the organisers for advice

NP0201 - Presumptive *Pseudomonas* spp.



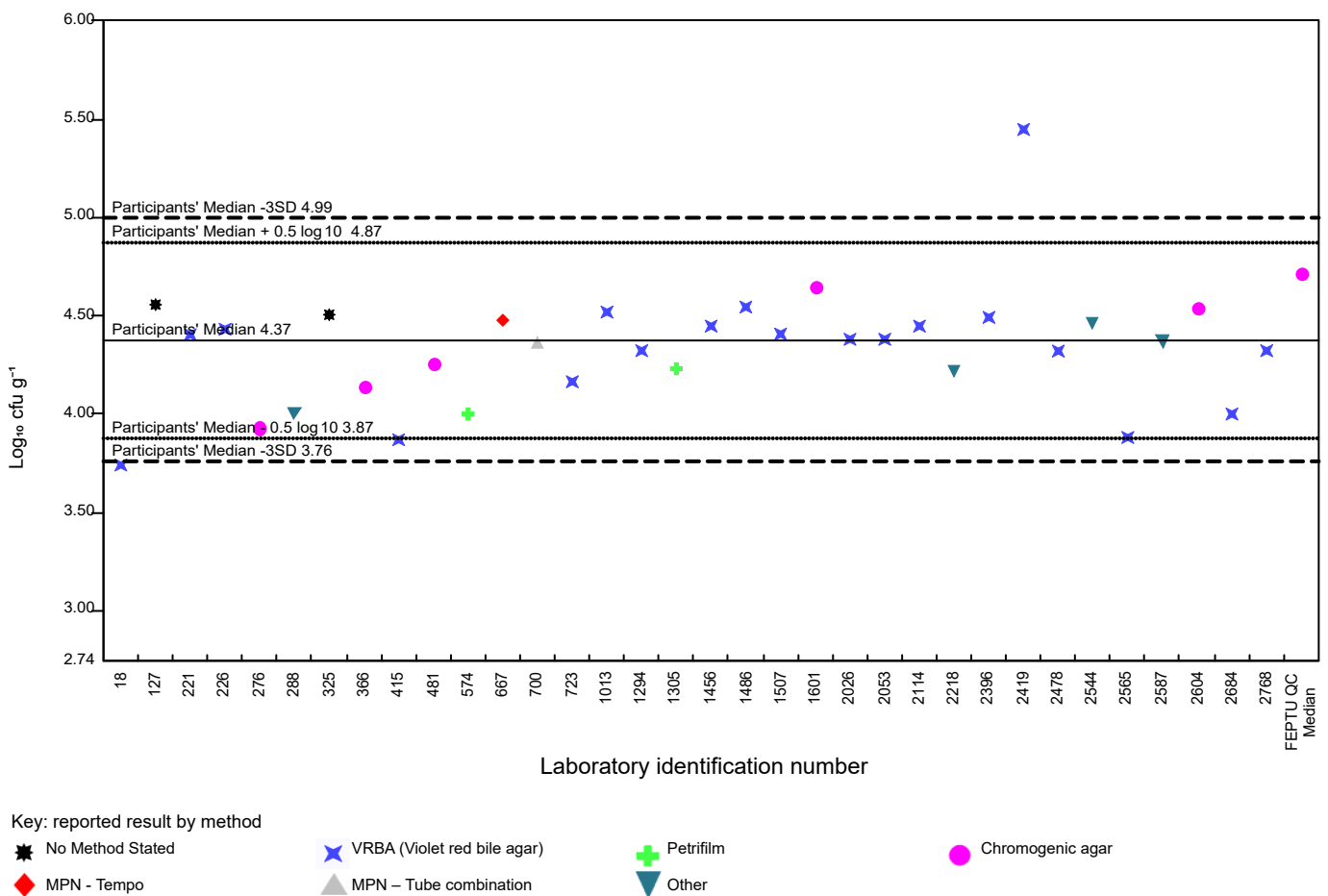
NP0201 - Yeasts

No data for graph

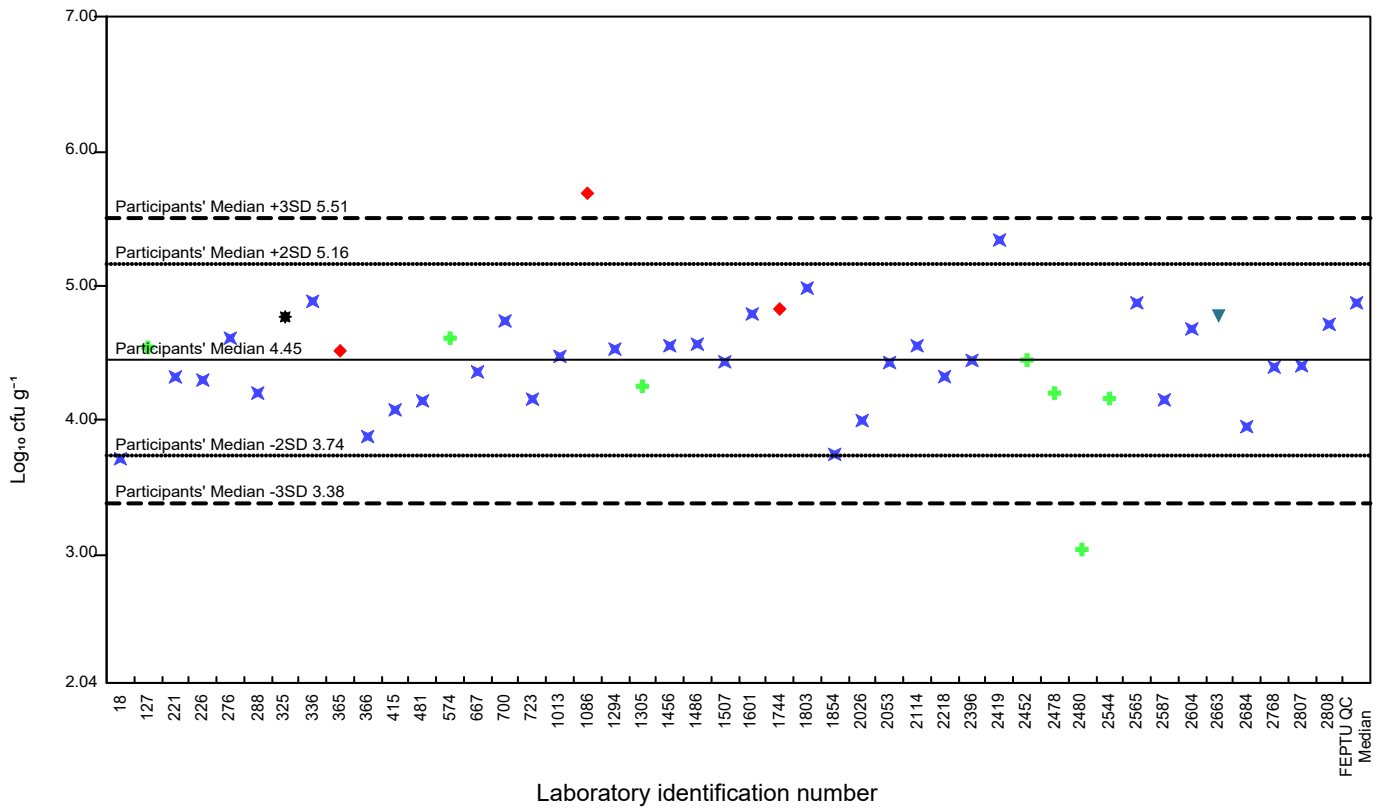
NP0201 - Moulds

No data for graph

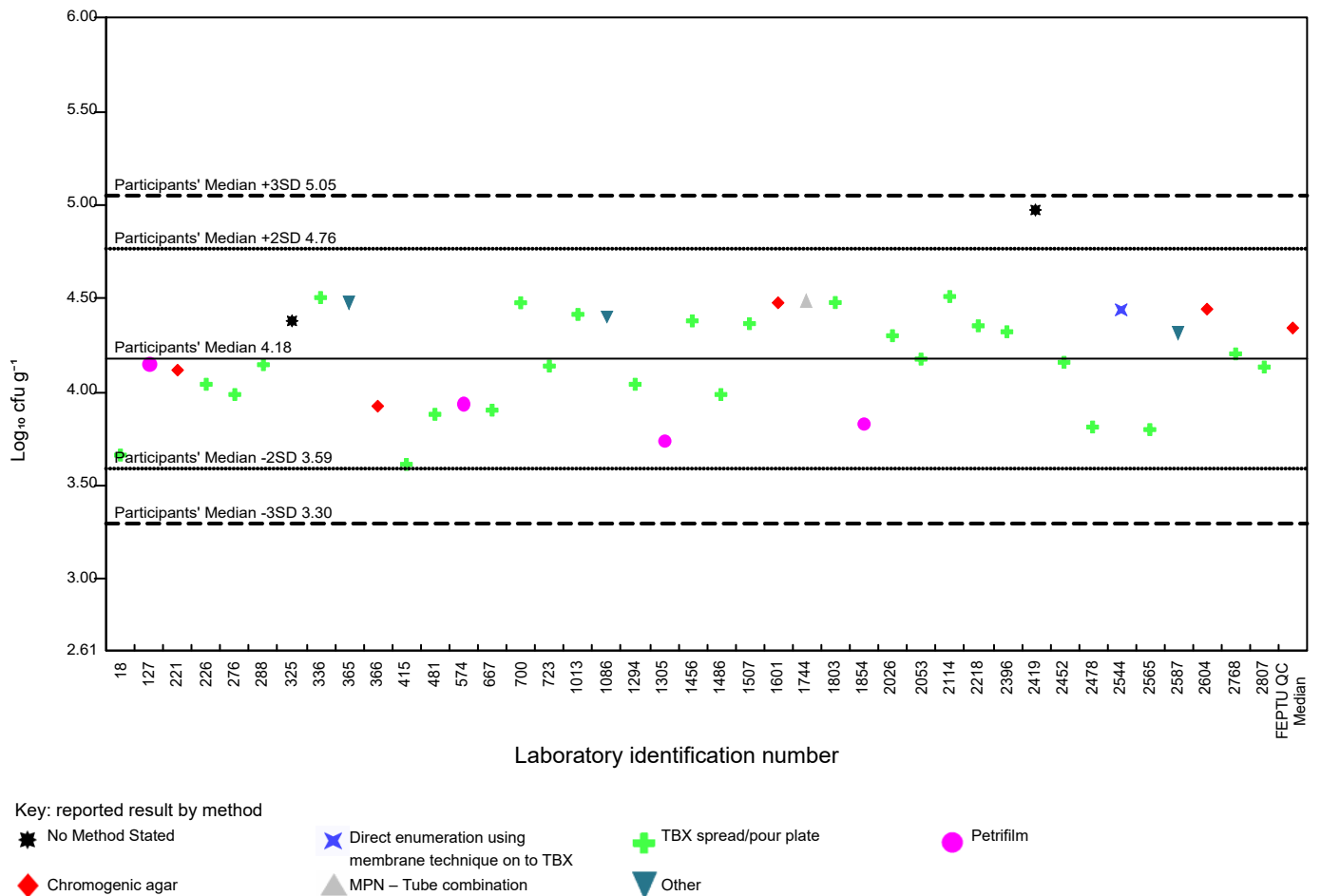
NP0201 - Coliform



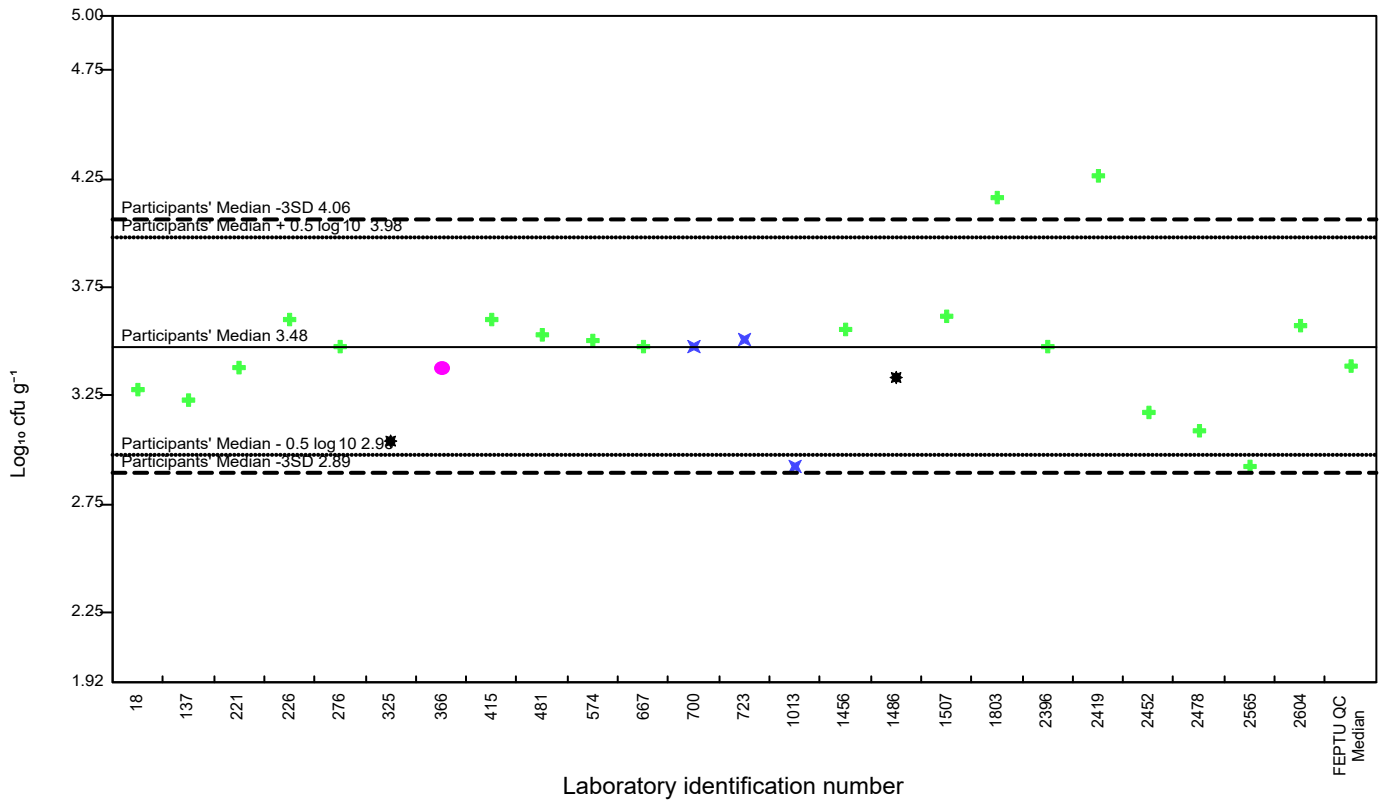
NP0201 - *Enterobacteriaceae*



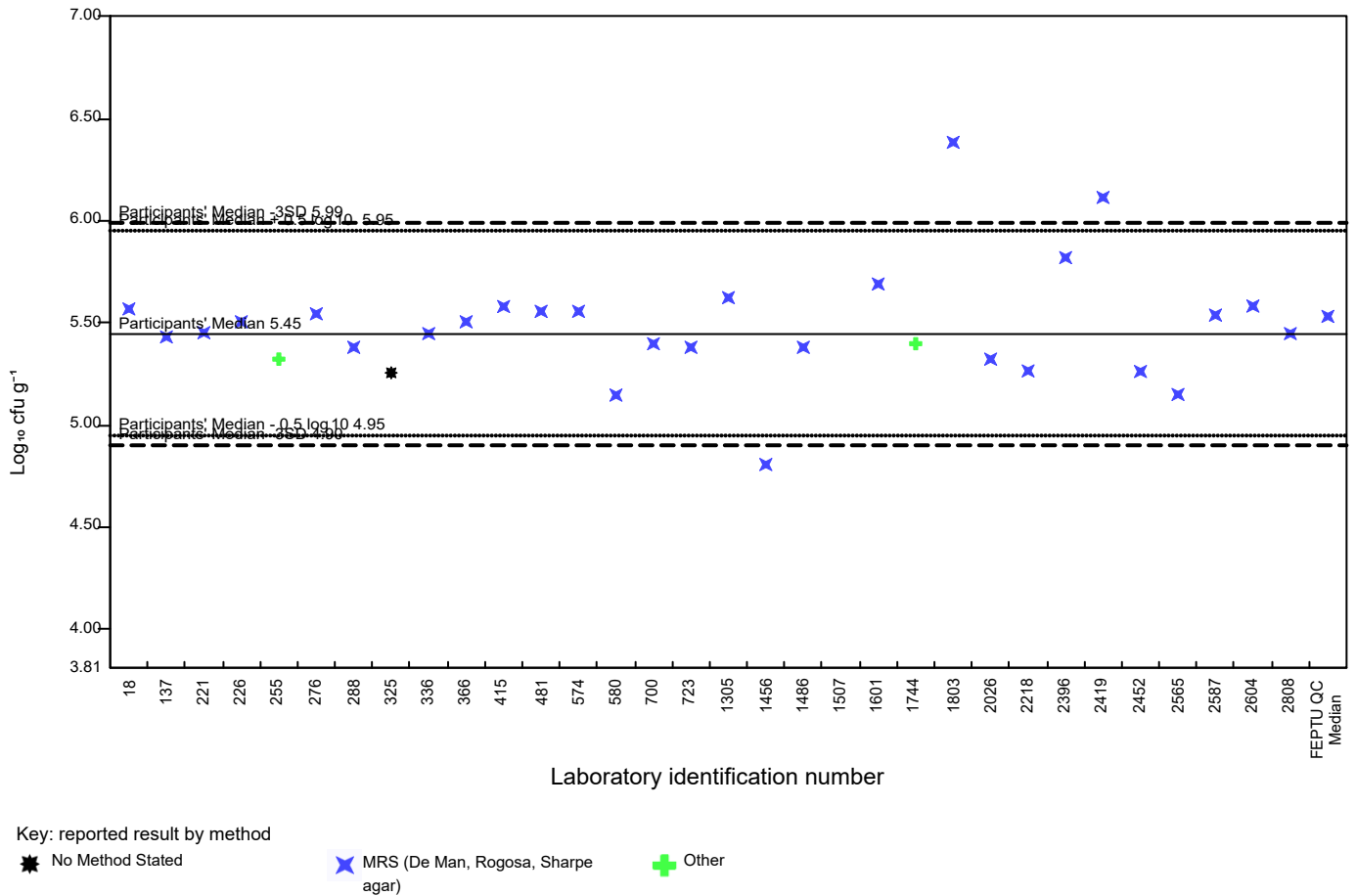
NP0201 - *Escherichia coli*



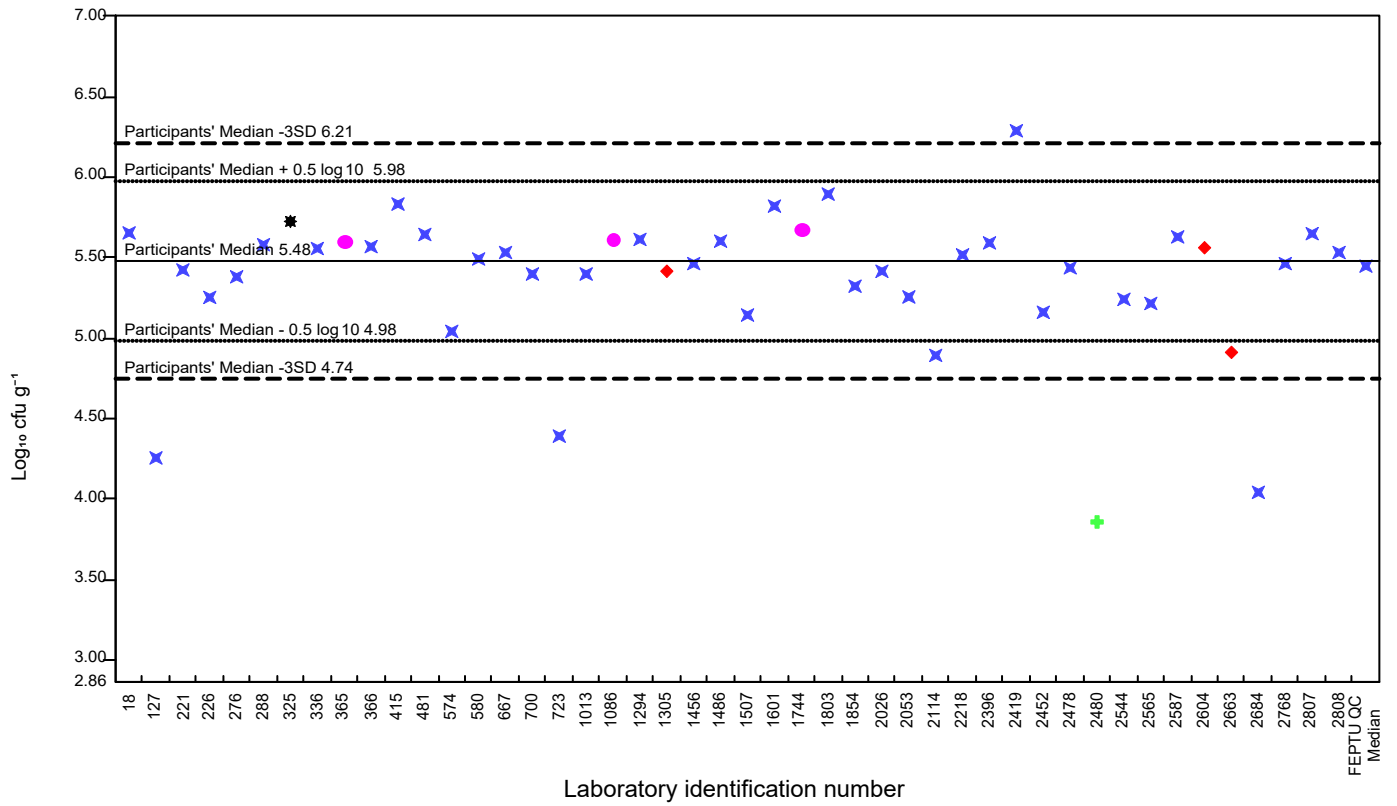
NP0201 - Enterococci



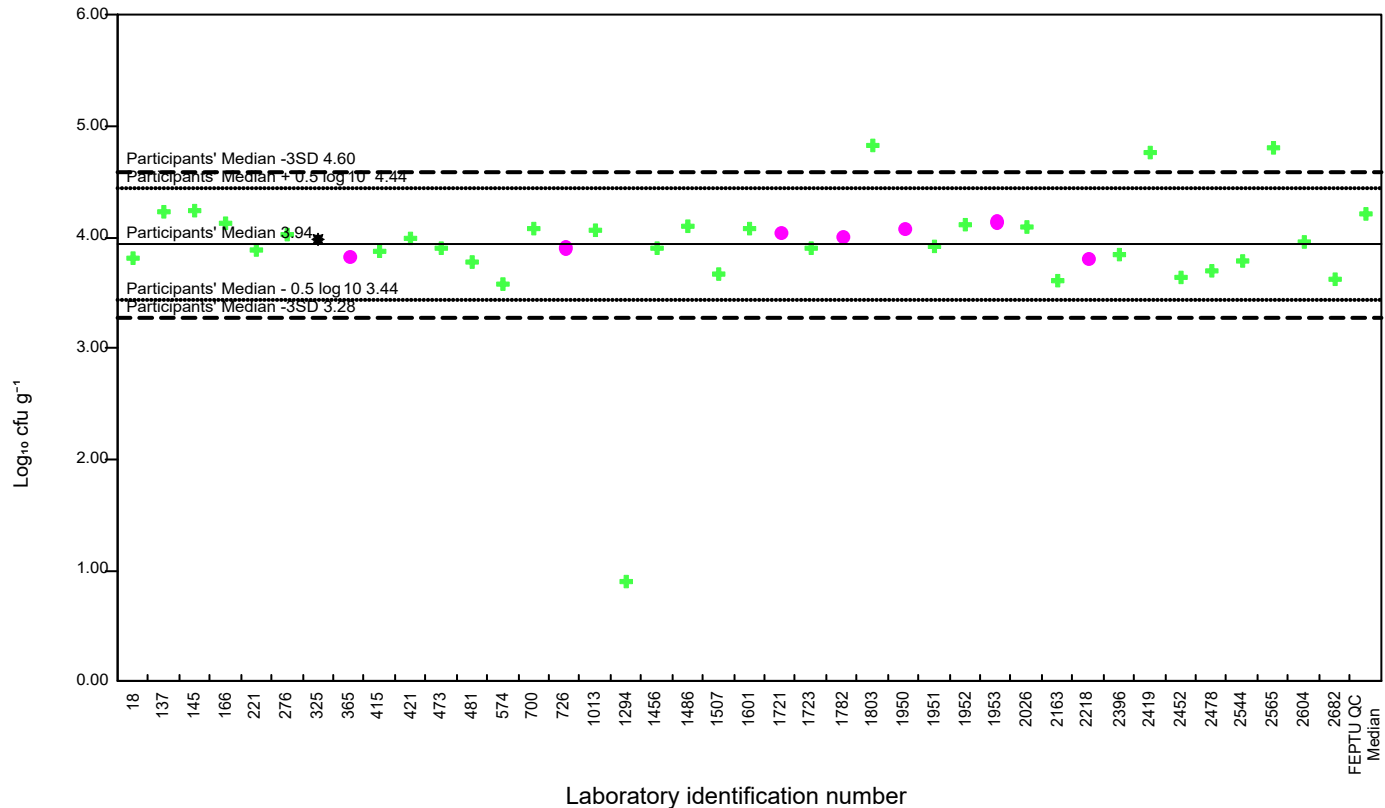
NP0201 - Lactic acid bacteria



NP0201 - Aerobic Colony Count (30°C)



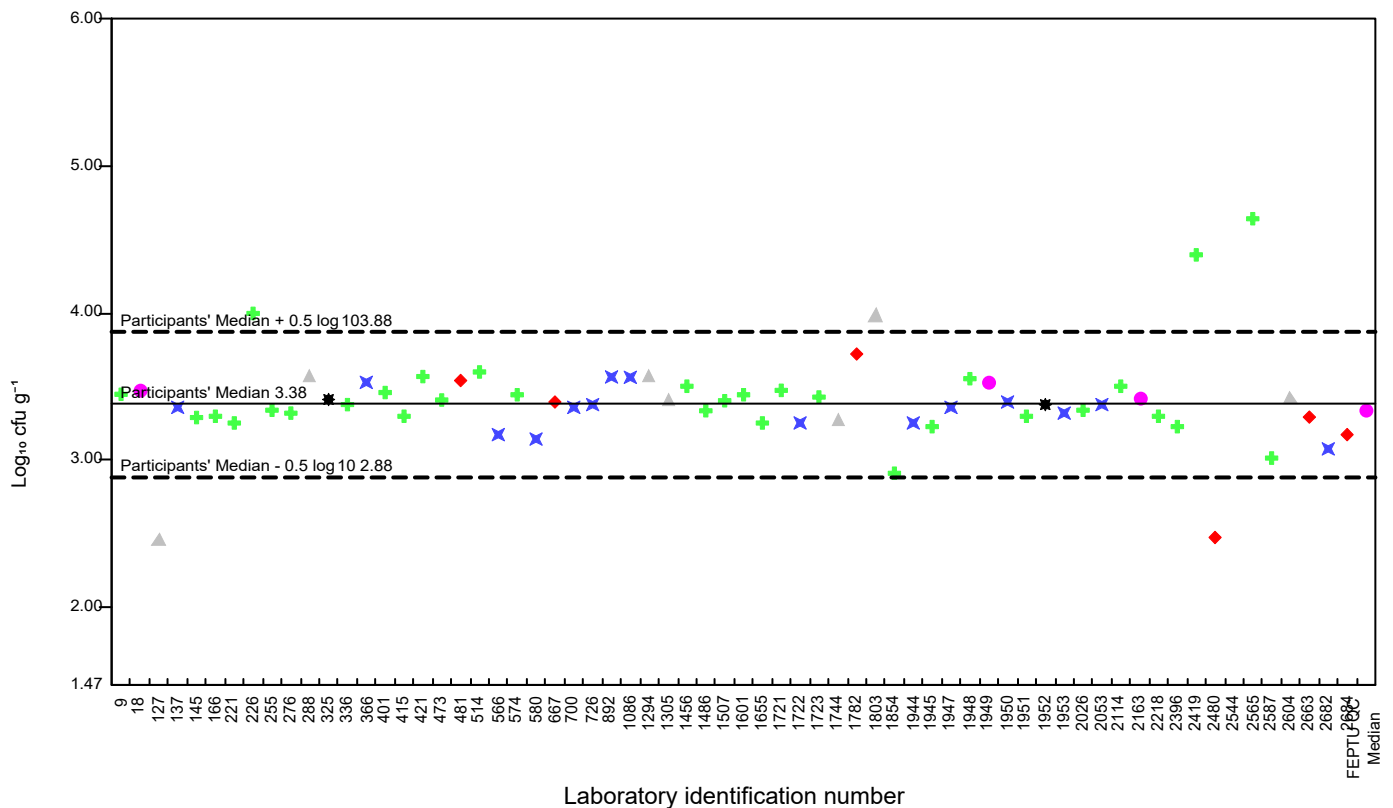
NP0202 - Presumptive *Pseudomonas* spp.



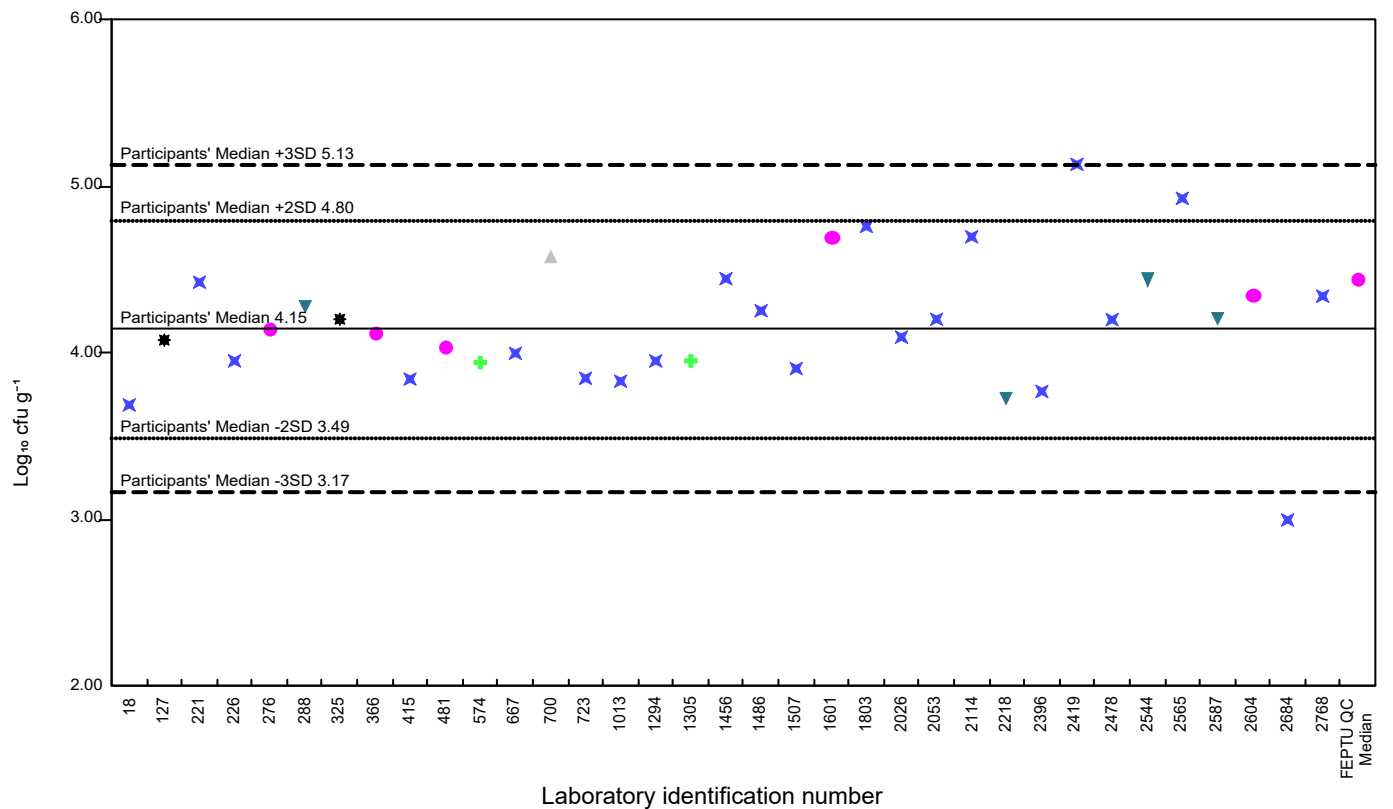
NP0202 - Yeasts

No data for graph

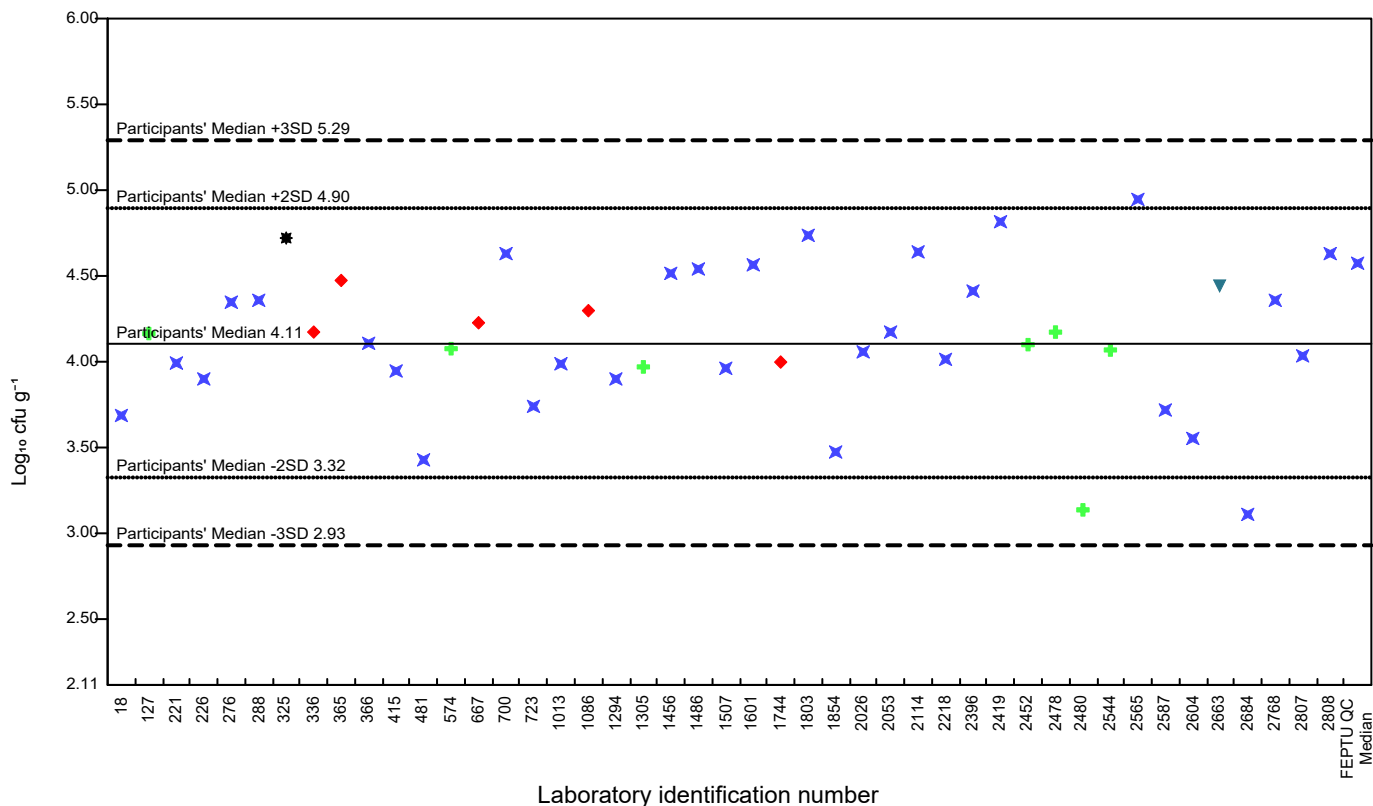
NP0202 - Moulds



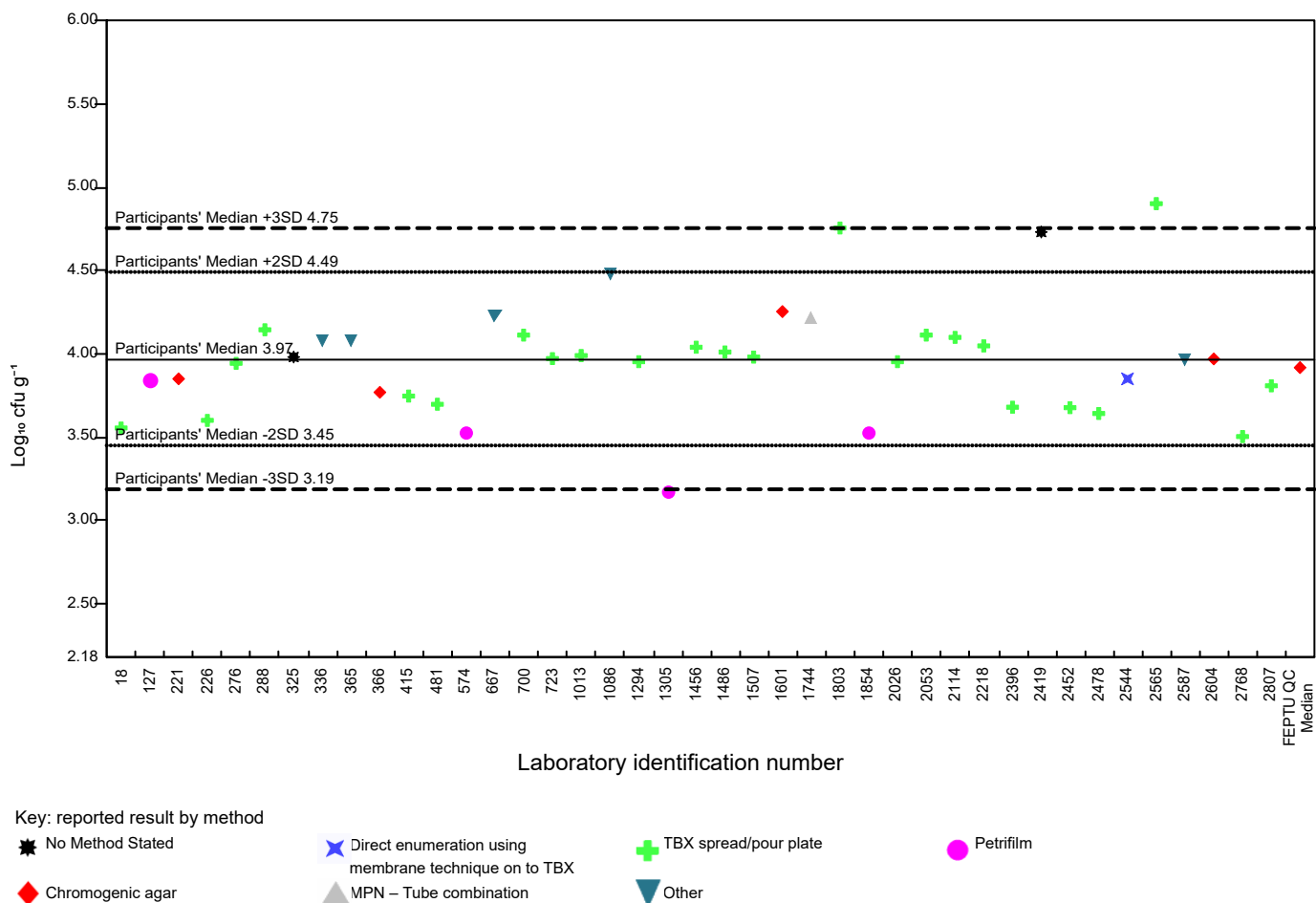
NP0202 - Coliform



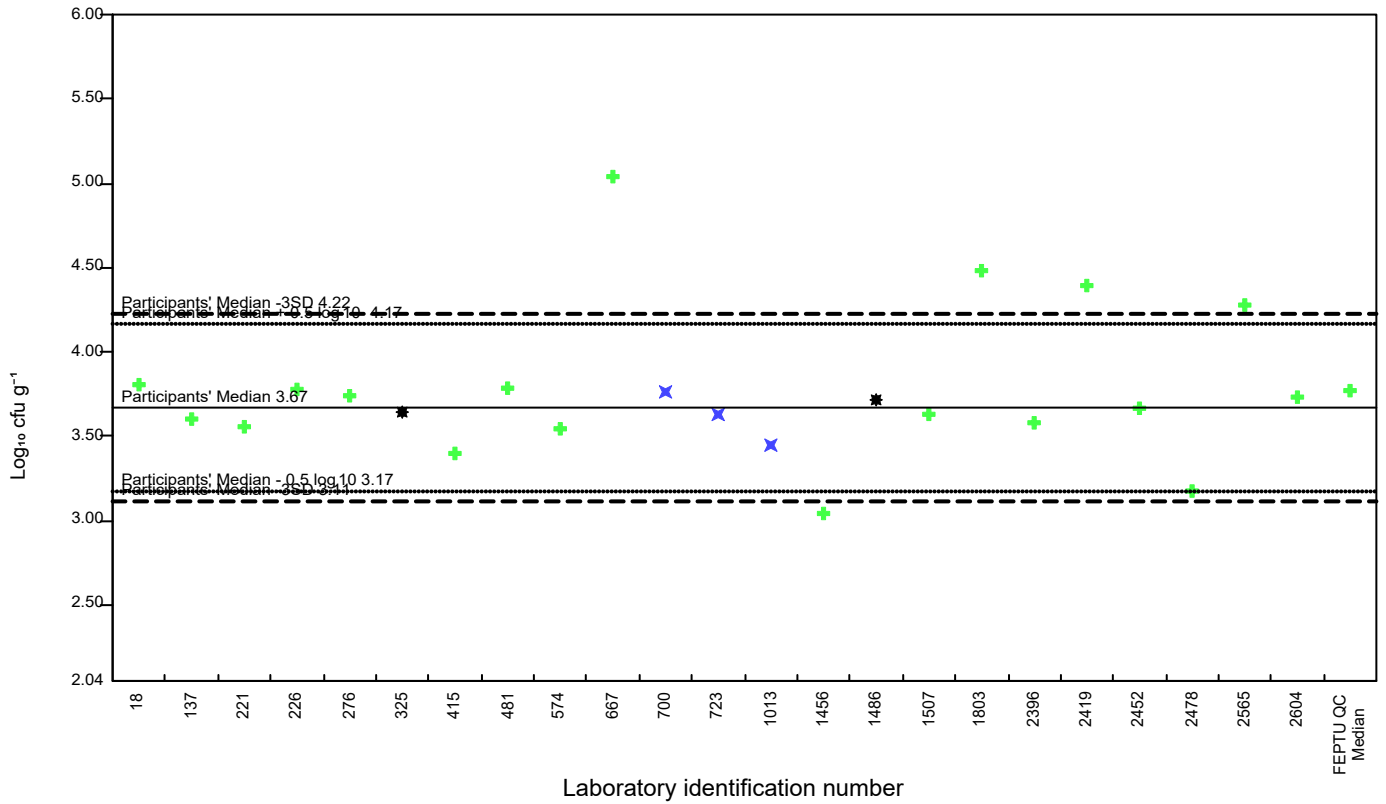
NP0202 - *Enterobacteriaceae*



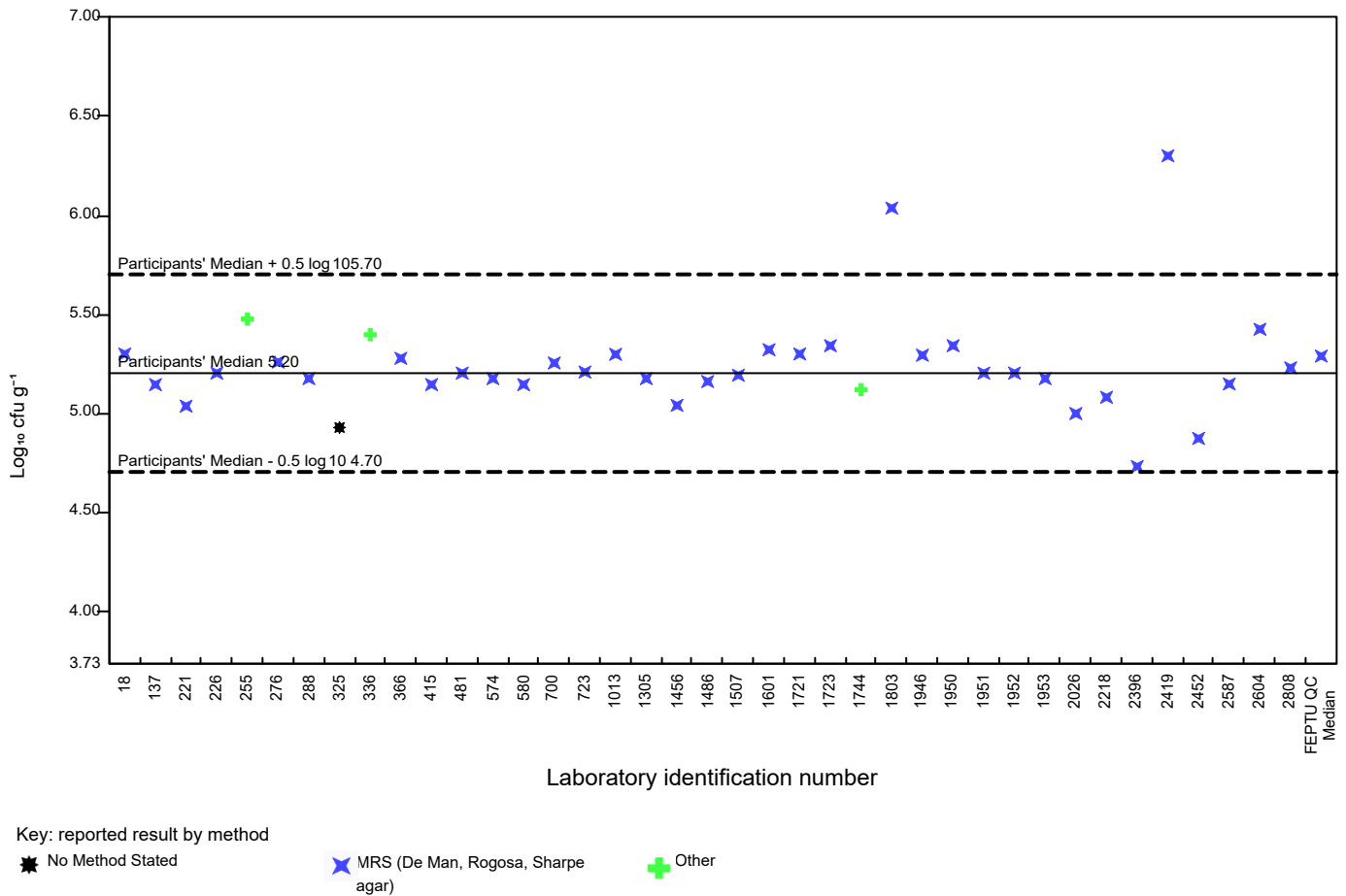
NP0202 - *Escherichia coli*



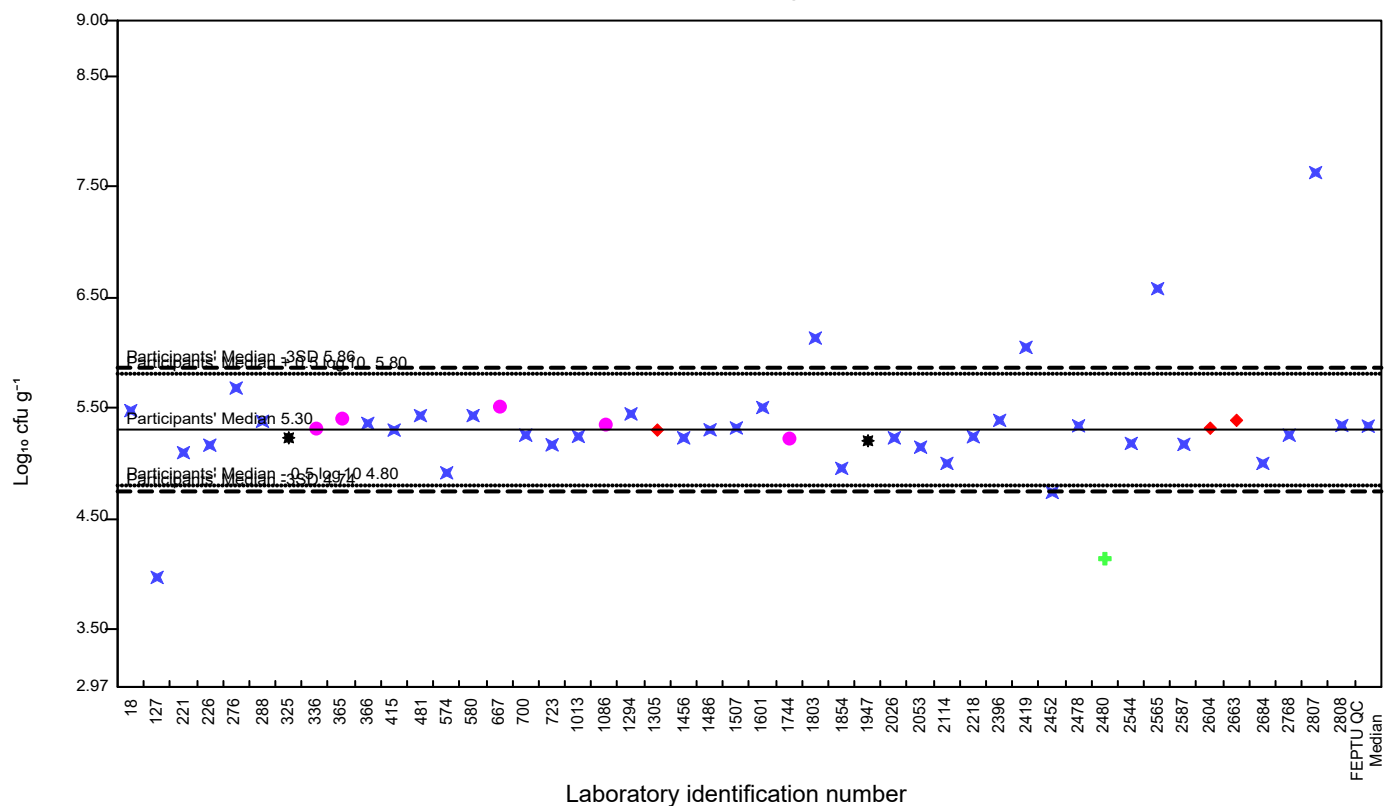
NP0202 - Enterococci



NP0202 - Lactic acid bacteria



NP0202 - Aerobic Colony Count (30°C)



General comment:

Participants are advised to note that while this scheme report shows method-based presentation of results, the data presented in this way has some limitations and seeks to identify trends in the results rather than assess specific method details.

Please ensure that you note on the electronic report form where results are presumptive as this has an impact on the scores allocated.

If you do not return a result for a distribution, you will not be able to view all the participants' results data in your individualised report. Please contact us if you require this information on foodeqa@ukhsa.gov.uk.

Statistical evaluation

Participants are advised that for a robust statistical evaluation at least 20 reported results are required for a parameter. When statistical calculation is based on 10 – 19 result, they should be interpreted with caution as they may be overly influenced by outlying results. This is the reason why the standard deviation of the enumeration results reported can be wide.

Trend analysis

Plotting your PT results over a period of time can help to identify potential problems. If you need the latest file please email us on foodeqa@ukhsa.gov.uk.

End of report.

