



ISTA
Seed Quality Assurance

ISTA Secretariat

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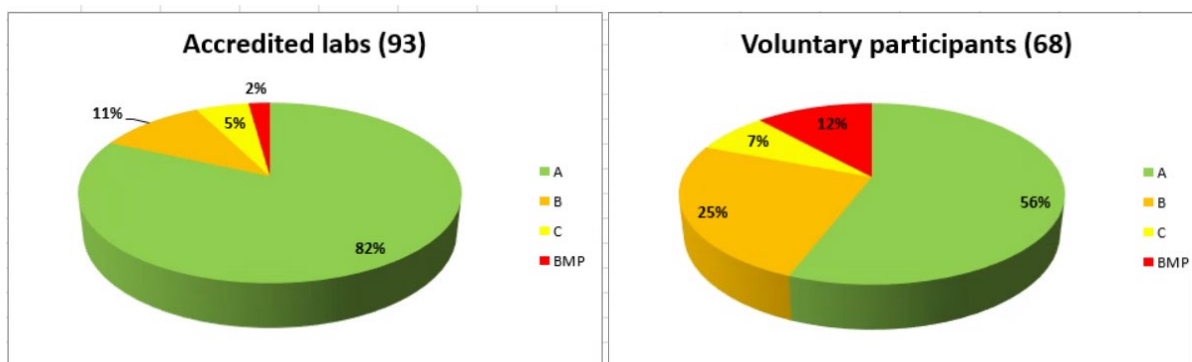
Summary report: PT 22-3 L.per

Species: *Lolium perenne*

Scope: PUR, OSD, GER, VIA (TZ test)

PURITY Ratings

Total number of participants = 161



Means and Standard Deviation

of the obligatory accredited participants
calculated for the category of pure seed

<u>Categories</u>	<u>Mean Values %</u>			<u>Standard Deviation</u>		
	Lot 1	Lot 2	Lot3	Lot 1	Lot 2	Lot 3
Pure seed	99.3	98.6	99.0	0.17	0.38	0.22
Other seed	0.3	0.6	0.4	-	-	-
Inert matter	0.4	0.8	0.6	-	-	-



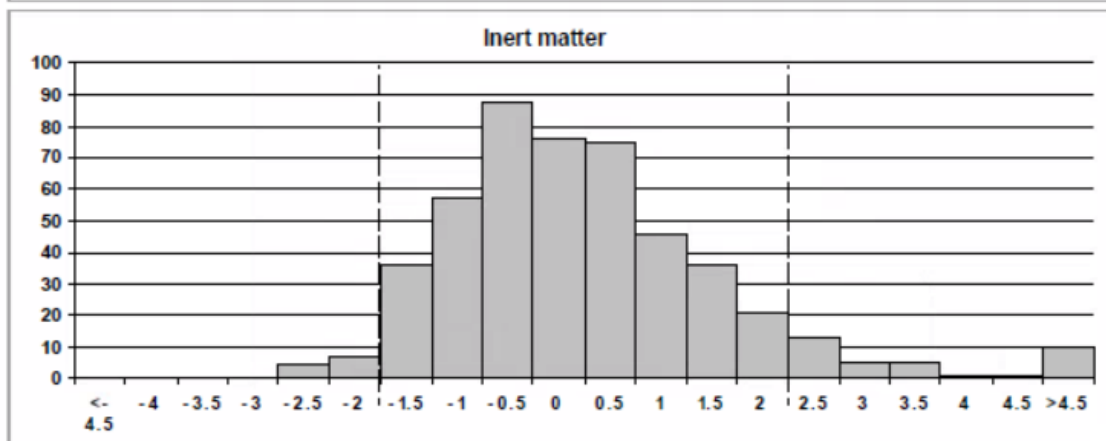
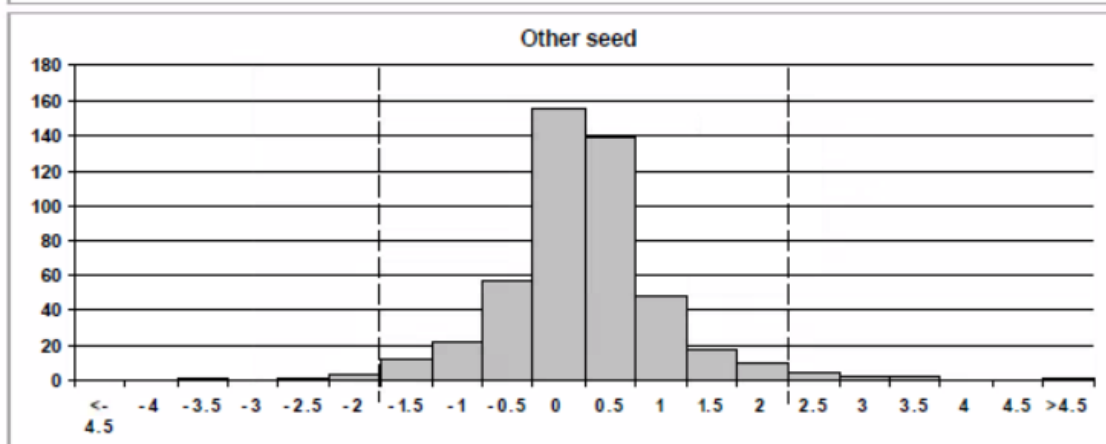
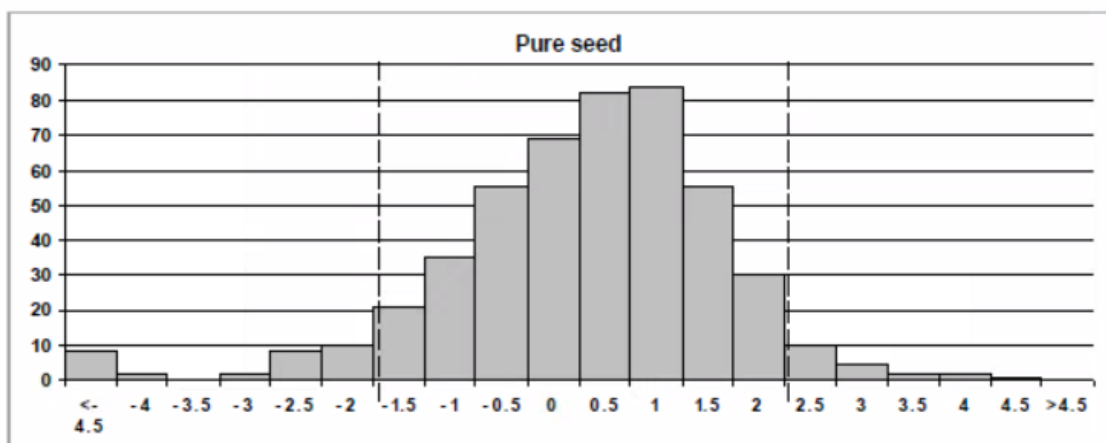
Z-score Distribution

Proficiency Test Report – Test Round 22-3 L.per

Species : *Lolium perenne*

Scope: Purity

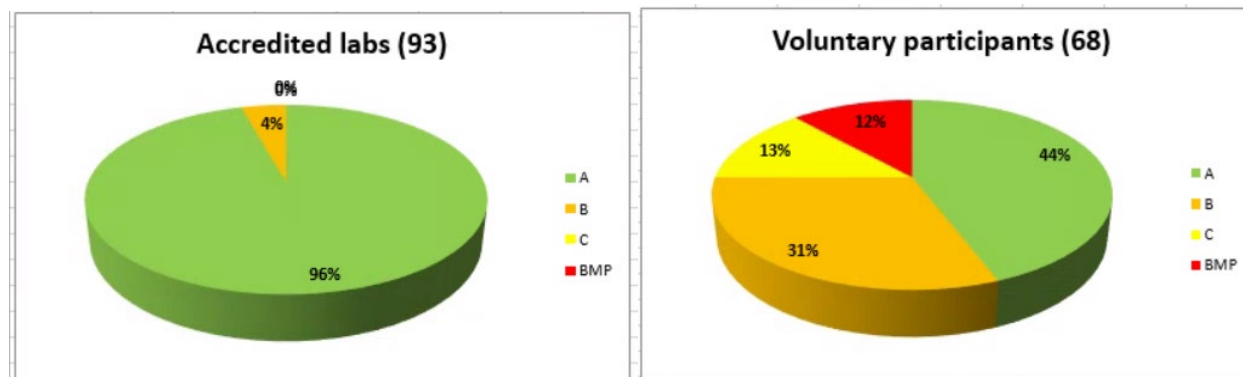
The following histograms show the frequency distributions of all participants Z-Scores for the relevant components, i.e. **Pure seed** and **Inert matter** and **Other seed**. The Z-Scores from all three samples are included in each histogram. For further explanations, please refer to the document 'The ISTA Proficiency Test Programme'





OSD Ratings

Total number of participants = 161



Retrieval rates

Proficiency Test Report - Test round 22-3 L.per

Species: *Lolium perenne*

Scope: Other Seed Determination

Average of seeds retrieved and identified correctly

The following table shows the retrieval rates of each species added by the test leader prior to sample dispatch. Every species that was added is assigned a value based on the actual retrieval rate of all seeds added. Thresholds are as follows:

$\geq 90\%$ -> 3
 $\geq 85\%$ -> 2
 $< 85\%$ -> 1

This score is multiplied with the number of seeds your laboratory reported and identified correctly. The percentage of retrieved and identified seeds is then determined and does define the in-round rating. The thresholds are as follows:

$\geq 90\%$ -> A
 $\geq 80\%$ -> B
 $\geq 70\%$ -> C
 $< 70\%$ -> BMP

For further details please refer to the document: "The ISTA Proficiency Test Programme".

Lot #	Species name	# of seeds added	Average # of seeds found	Retrieval rate [%]	Assigned factor
Lot 1	1 <i>Bromus hordeaceus</i>	2	1.7	83.7	1
	2 <i>Cichorium intybus</i>	3	2.7	89.3	2
	3 <i>Elymus repens</i>	2	1.3	66.3	1
	4 <i>Poa pratensis</i>	3	2.5	83.4	1
	5 <i>Rumex sp.</i>	2	1.8	91.4	3
Lot 2	1 <i>Bromus sterilis</i>	3	2.7	90.1	3
	2 <i>Phalaris arundinacea</i>	2	1.7	84.9	1
	3 <i>Poa annua</i>	2	1.7	83.7	1
	4 <i>Trifolium repens</i>	3	2.6	87.0	2
Lot 3	1 <i>Erodium cicutarium</i>	2	1.8	88.6	2
	2 <i>Festuca arundinacea</i>	2	1.0	52.0	1
	3 <i>Festuca rubra</i>	3	2.1	69.4	1
	4 <i>Phleum pratense</i>	3	2.6	85.9	2

Note for Lot 3:

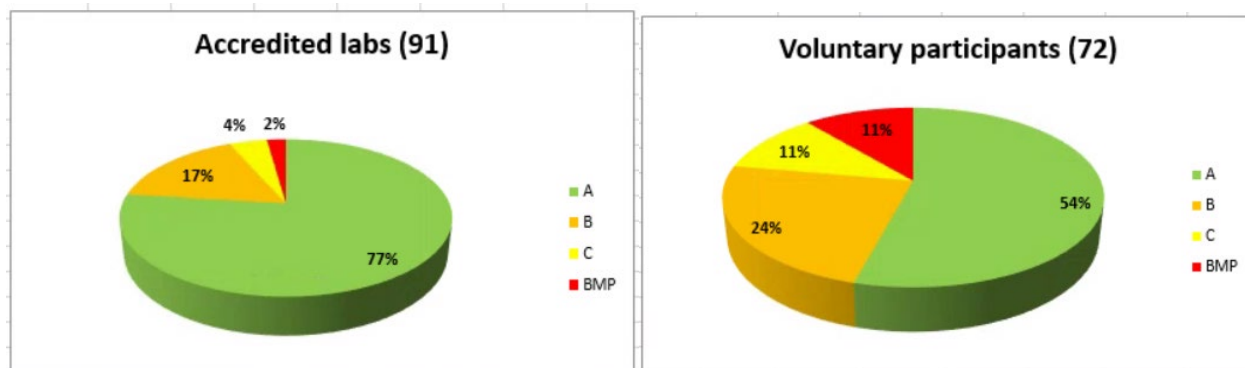
- natural presence of *Alopecurus* was reported by most of the laboratories but is not evaluated



- *Festuca rubra*, spiked in next to the *Festuca arrundinacea* was not captured within the preliminary results but this was corrected for the final results

GERMINATION Ratings

Total number of participants = 163



Means and Standard Deviation

of the obligatory accredited participants
calculated for the category of normal seedlings

Categories	Mean Values %			Standard Deviation		
	Lot 1	Lot 2	Lot3	Lot 1	Lot 2	Lot 3
Normal seedlings	88	92	93	1.99	1.36	0.98
Abnormal seedlings	2	2	2	-	-	-
Non-germinated seed	10	6	5	-	-	-



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Method used

overview for all participants
presented for the temperature, substrate and pretreatment

Temperature °C	# Users		# Users TOTAL
	Accredited labs	Voluntary participants	
20	10	16	26
25*	0	1	1
15⇔25	12	3	15
20⇔30	69	52	121

* this temperature is not prescribed in the ISTA Rules

Substrate	# Users		# Users TOTAL
	Accredited labs	Voluntary participants	
TP	83	67	150
BP*	1	1	2
PP	6	3	9
TP + sand*	1		1
Not reported		1	1

* these substrates are not prescribed in the ISTA Rules

Pretreatment	# Users		# Users TOTAL
	Accredited labs	Voluntary participants	
No Treatment	36	41	77
KNO₃	14	15	29
Prechill	33	15	48
Prechill + KNO₃	8	1	9



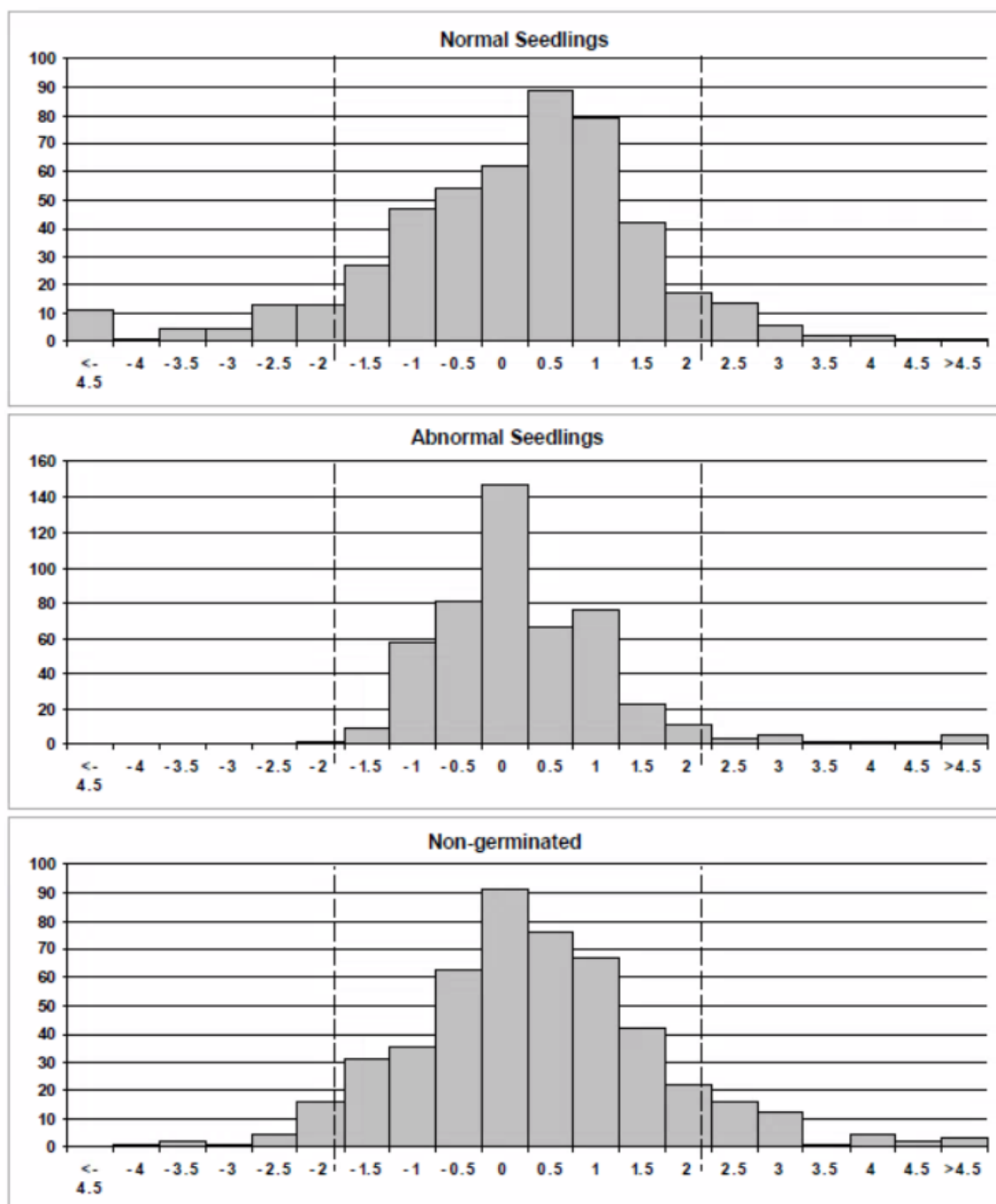
Z-score Distribution

Proficiency Test Report – Test Round 22-3 L.per

Species : *Lolium perenne*

Scope: Germination

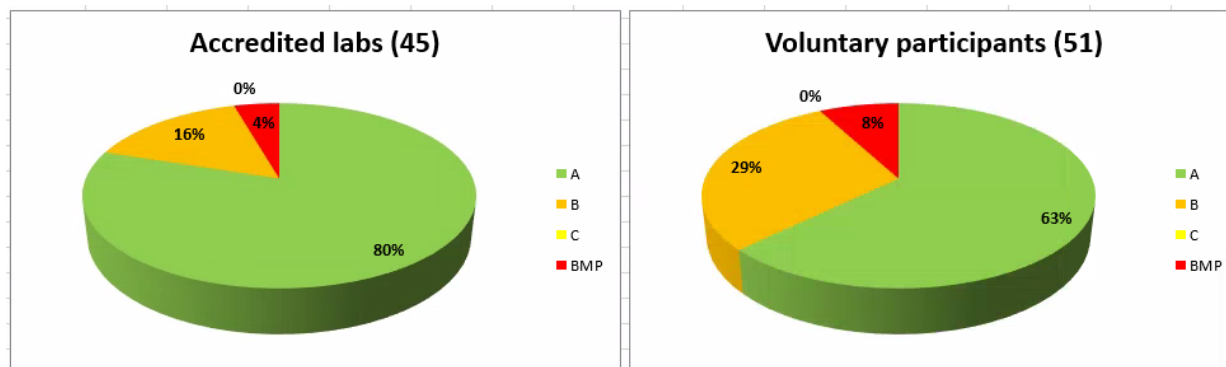
The following histograms show the frequency distributions of all participants Z-Scores for the relevant components, i.e. **Normal and Abnormal Seedlings** and **Non-germinated Seeds**. The Z-Scores from all three samples are included in each histogram. For further explanations, please refer to the document 'The ISTA Proficiency Test Programme'





VIABILITY TEST (TZ test) Ratings

Total number of participants = 96



Means and Standard Deviation of the obligatory accredited participants

Categories	Mean Values %			Standard Deviation		
	Lot 1	Lot 2	Lot3	Lot 1	Lot 2	Lot 3
Viable seed	90	93	94	2.32	1.67	1.85

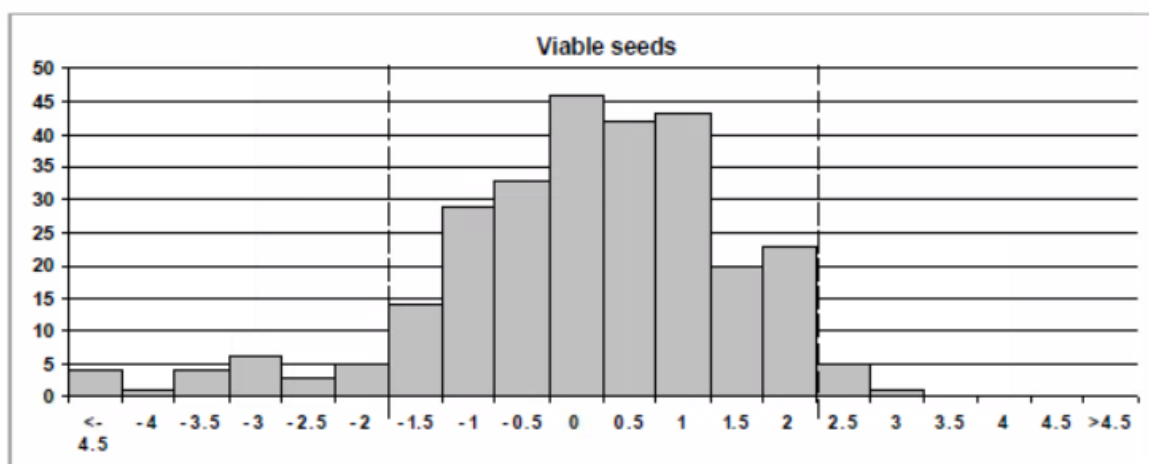
Z-score Distribution

Proficiency Test Report – Test Round 22-3 L.per

Species : *Lolium perenne*

Scope: Tetrazolium

The following histogram shows the frequency distributions of all participants Z-Scores for the viability test. The Z-Scores from all three samples are included in each histogram. For further explanations, please refer to the document 'The ISTA Proficiency Test Programme'.





REPORTING ON THE ISTA ORANGE CERTIFICATES

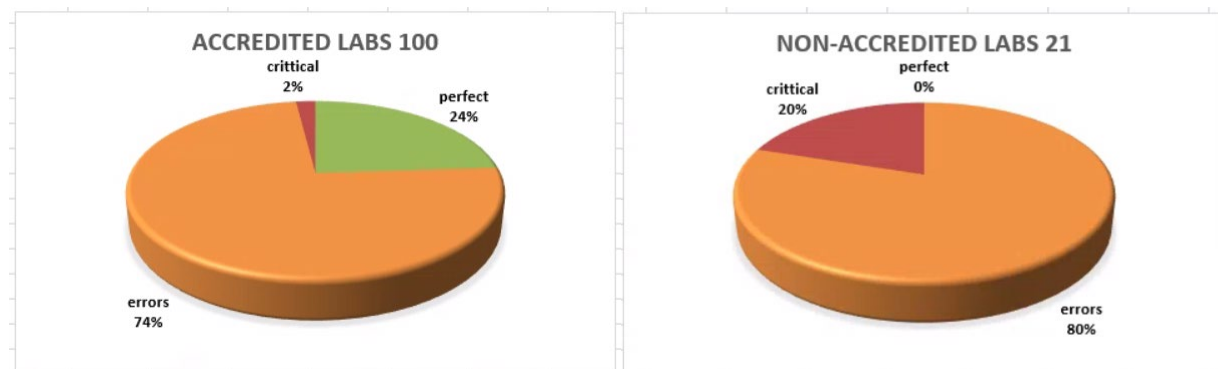
This exercise was voluntary for all participants.

The completion of the certificate has a training purpose only and it is not rated.

Out of 163 participants, the completed certificate was submitted for the review by 121 participants (74%).
Our of 121 submission, 100 were from the accredited laboratories and 21 from non-accredited.

Quality of completing the certificates:

100 accredited laboratories		21 non-accredited laboratories	
NO error 24 labs	24%	No error 0 labs	0%
Minor and major errors 74 labs	74%	Minor and major errors 17 labs	80%
Critical errors 2 labs	2%	Critical errors 4 labs	20%
Critical error: certificate is invalid because of <ul style="list-style-type: none">• Handwriting or• Stamp missing or• Signature missing or• Date of issue missing or• Signs of data alternation/erasures			



Each participating laboratory received the personalised report on how the Orange Certificate was completed.