



**ISTA**  
Seed Quality Assurance

**ISTA Secretariat**

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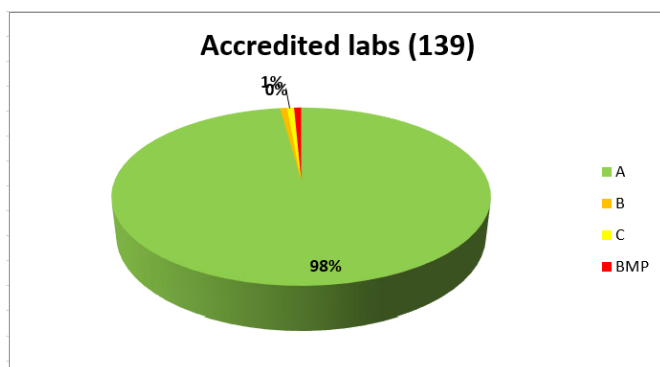
**Summary report: PT 26-1 L.usi**

**Species:** *Linum usitatissimum*

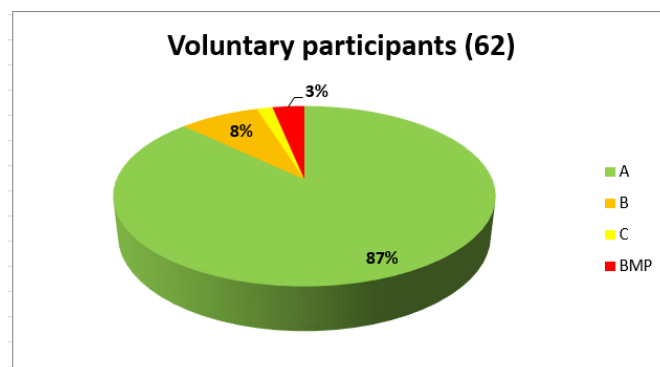
**Scope:** PUR, OSD, GER, OIC issuance

**Crop groups:** 5 (Other Agricultural Crops) and 8 (Flowers)

**PURITY Ratings**



**Total number of participants = 201**



**Means and Standard Deviation**

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

| Categories   | Mean Values % |       |      | Standard Deviation |       |       |
|--------------|---------------|-------|------|--------------------|-------|-------|
|              | Lot 1         | Lot 2 | Lot3 | Lot 1              | Lot 2 | Lot 3 |
| Pure seed    | 98.6          | 97.7  | 98.4 | 0.23               | 0.30  | 0.25  |
| Other seed   | 1.1           | 2.1   | 0.9  | -                  | -     | -     |
| Inert matter | 0.3           | 0.2   | 0.7  | -                  | -     | -     |

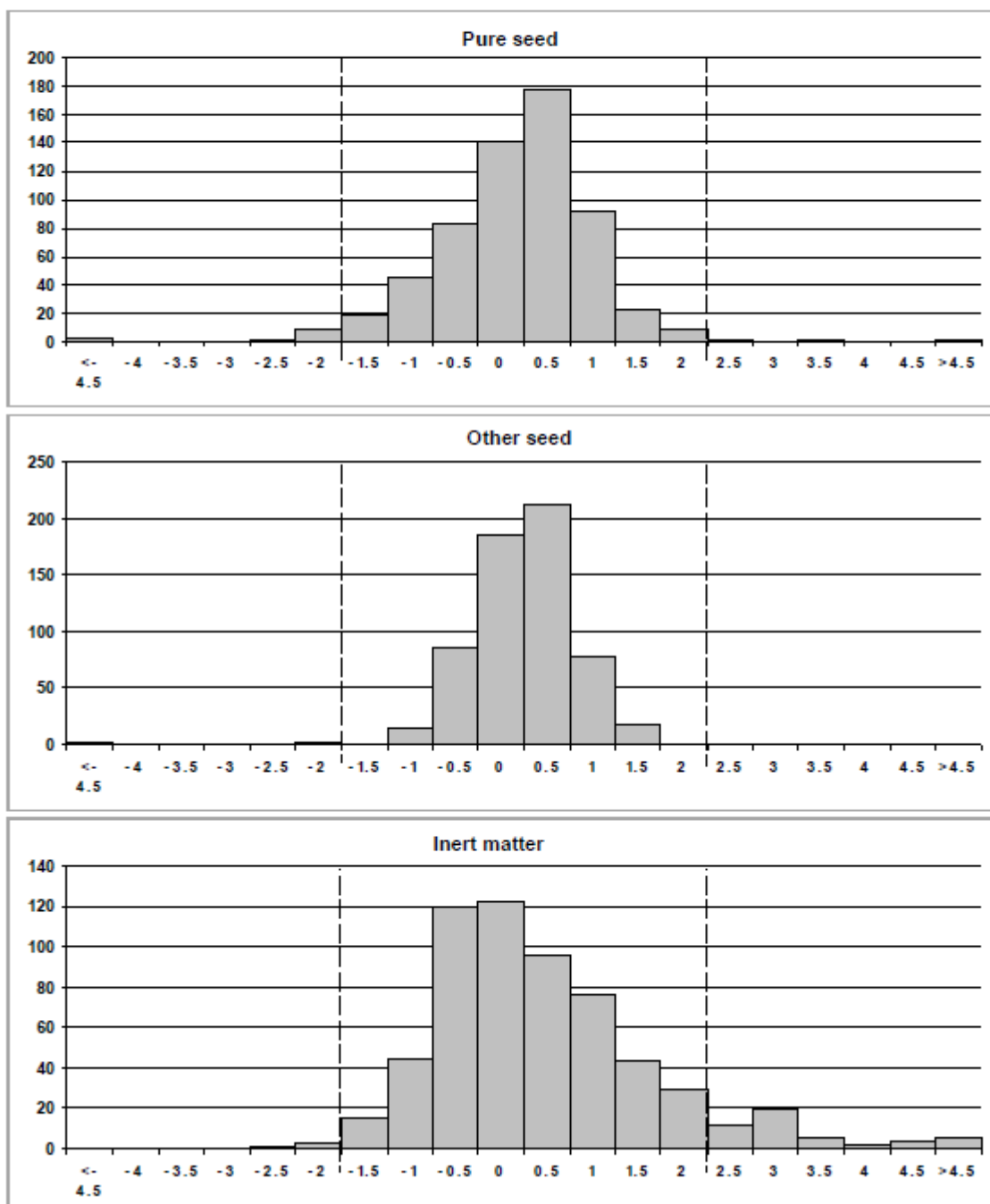
## Z-score Distribution

### Proficiency Test Report – Test Round 26-1 L.usi

**Species :** *Linum usitatissimum*

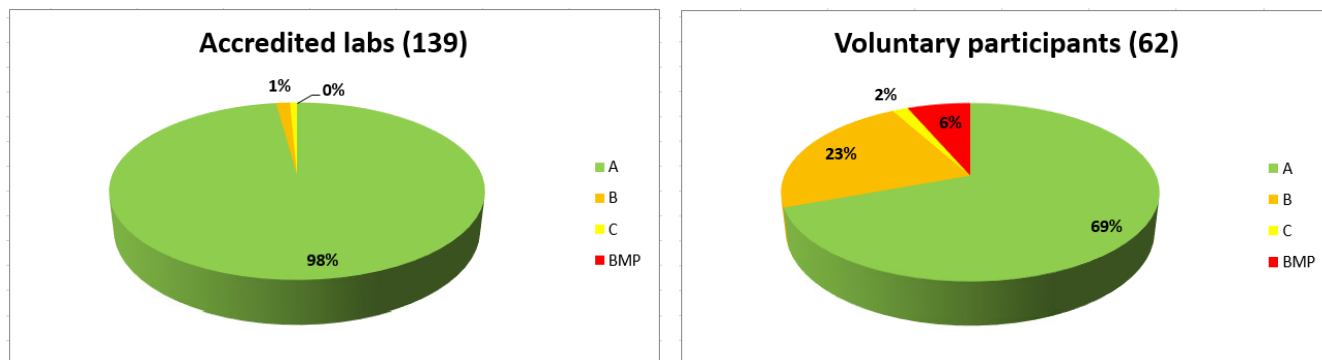
**Scope:** Purity

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 = 201



## Retrieval rates

Proficiency Test Report - Test round 26-1 L.usi

Species: *Linum usitatissimum*

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:

- >=90 % -> 3
- >=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:

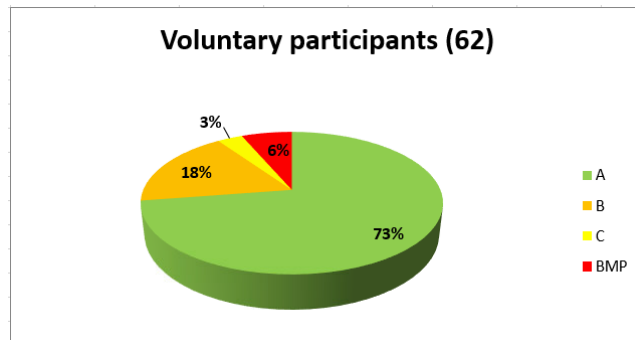
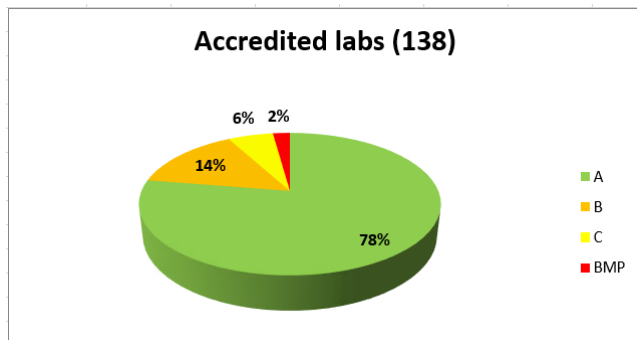
- >=90 % -> A
- >=80 % -> B
- >=70 % -> C
- <70 % -> BMP

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>Cirsium arvense</i>                  | 3                | 2.8                      | 93.4               | 3               |
|       | 2 <i>Setaria viridis</i>                  | 4                | 3.7                      | 93.1               | 3               |
|       | 3 <i>Triticum aestivum subsp.aestivum</i> | 5                | 4.8                      | 96.3               | 3               |
| Lot 2 | 1 <i>Fallopia convolvulus</i>             | 2                | 1.9                      | 93.3               | 3               |
|       | 2 <i>Hordeum vulgare subsp.vulgare</i>    | 5                | 4.8                      | 96.0               | 3               |
|       | 3 <i>Panicum miliaceum</i>                | 4                | 3.7                      | 93.0               | 3               |
| Lot 3 | 1 <i>Avena fatua</i>                      | 3                | 2.8                      | 93.6               | 3               |
|       | 2 <i>Bassia scoparia</i>                  | 4                | 2.9                      | 72.1               | 1               |
|       | 3 <i>Lens culinaris</i>                   | 2                | 1.9                      | 94.0               | 3               |

## GERMINATION Ratings

Total number of participants = 200



## 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    | 86            | 86    | 78   | 3.41               | 2.77  | 2.72  |
| Abnormal seedlings  | 7             | 5     | 5    | -                  | -     | -     |
| Non-germinated seed | 7             | 9     | 17   | -                  | -     | -     |

## Method used

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

| Temperature °C | # Users         |                        | # Users TOTAL |
|----------------|-----------------|------------------------|---------------|
|                | Accredited labs | Voluntary participants |               |
| 20⇔30          | 63              | 38                     | 101           |
| 20             | 74              | 24                     | 98            |
| 3 *            | 1               |                        | 1             |

\* this temperature is not indicated in the Table 5A of the ISTA Rules

| Substrate     | # Users            |                           | # Users<br>TOTAL |
|---------------|--------------------|---------------------------|------------------|
|               | Accredited<br>labs | Voluntary<br>participants |                  |
| <b>TP</b>     | 57                 | 26                        | <b>83</b>        |
| <b>BP</b>     | 40                 | 26                        | <b>66</b>        |
| <b>PP</b>     | 41                 | 8                         | <b>49</b>        |
| <b>Sand *</b> | 0                  | 2                         | <b>2</b>         |

\* this substrate is not indicated in the Table 5A of the ISTA Rules

| Pretreatment            | # Users            |                           | # Users<br>TOTAL |
|-------------------------|--------------------|---------------------------|------------------|
|                         | Accredited<br>labs | Voluntary<br>participants |                  |
| <b>No Treatment</b>     | 83                 | 36                        | <b>119</b>       |
| <b>Prechill</b>         | 50                 | 26                        | <b>76</b>        |
| <b>Light *</b>          | 4                  |                           | <b>4</b>         |
| <b>H<sub>2</sub>O *</b> | 1                  |                           | <b>1</b>         |

\* these preparatory methods are not indicated in the Table 5A of the ISTA Rules

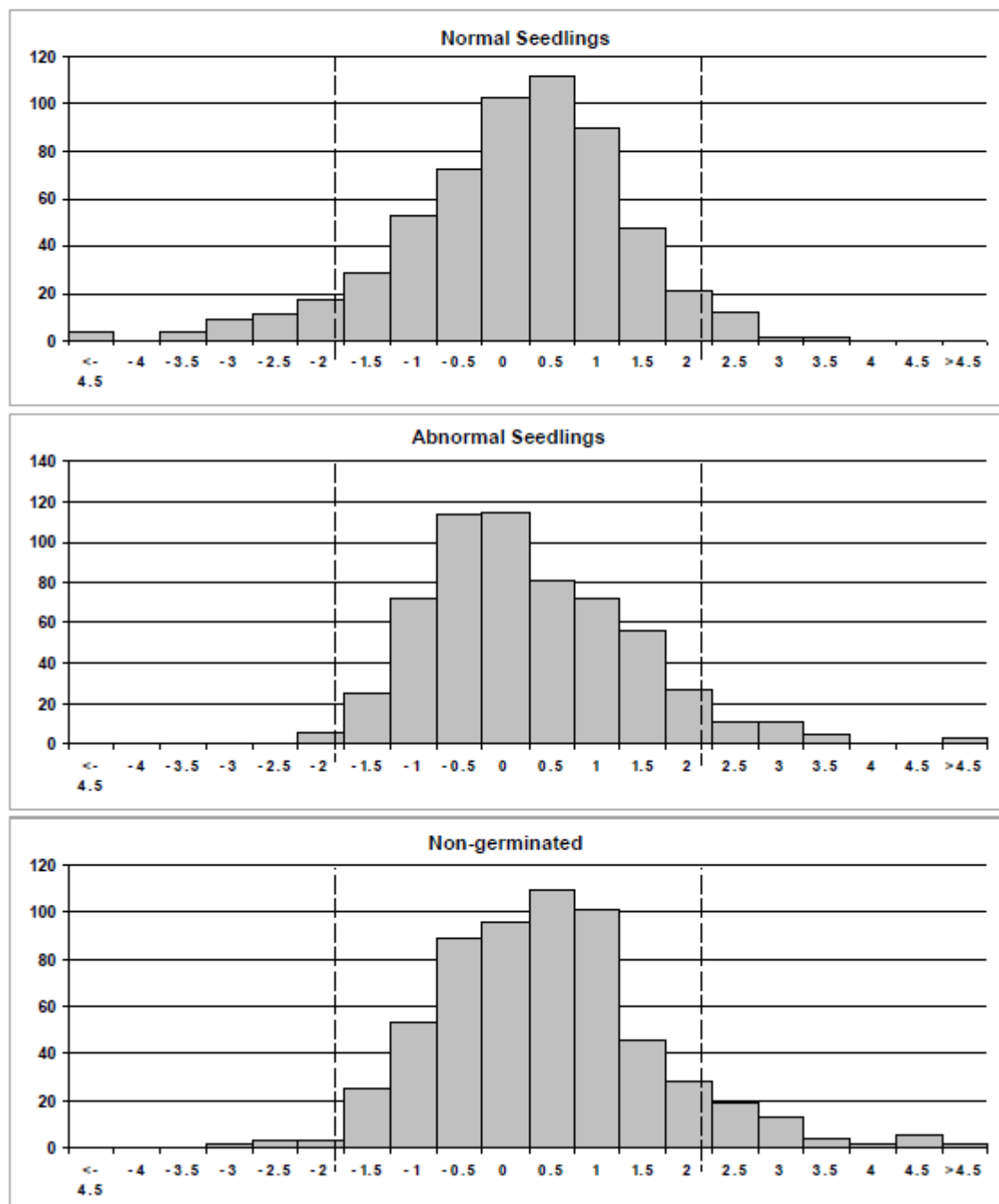
## Z-score Distribution

### Proficiency Test Report – Test Round 26-1 L.usi

**Species :** *Linum usitatissimum*

**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'



## Images of normal and abnormal seedlings and of non-germinated seeds

### Lot 1 - Normal Seedlings



### Abnormal Seedlings



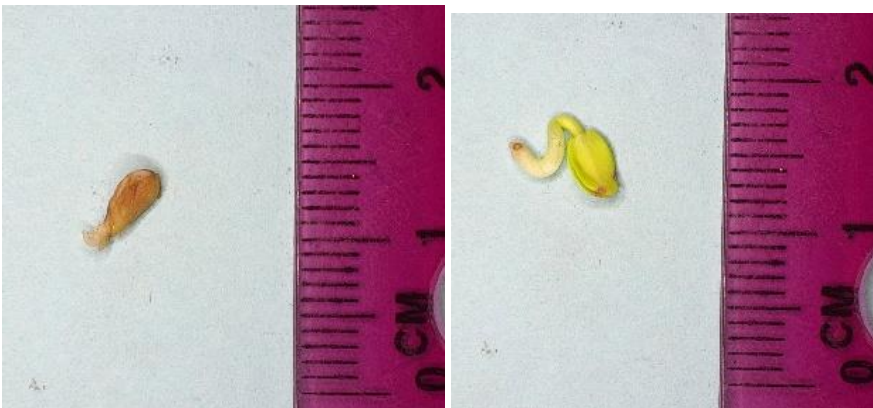
### Ungerminated seeds



Lot 2 - Normal seedlings



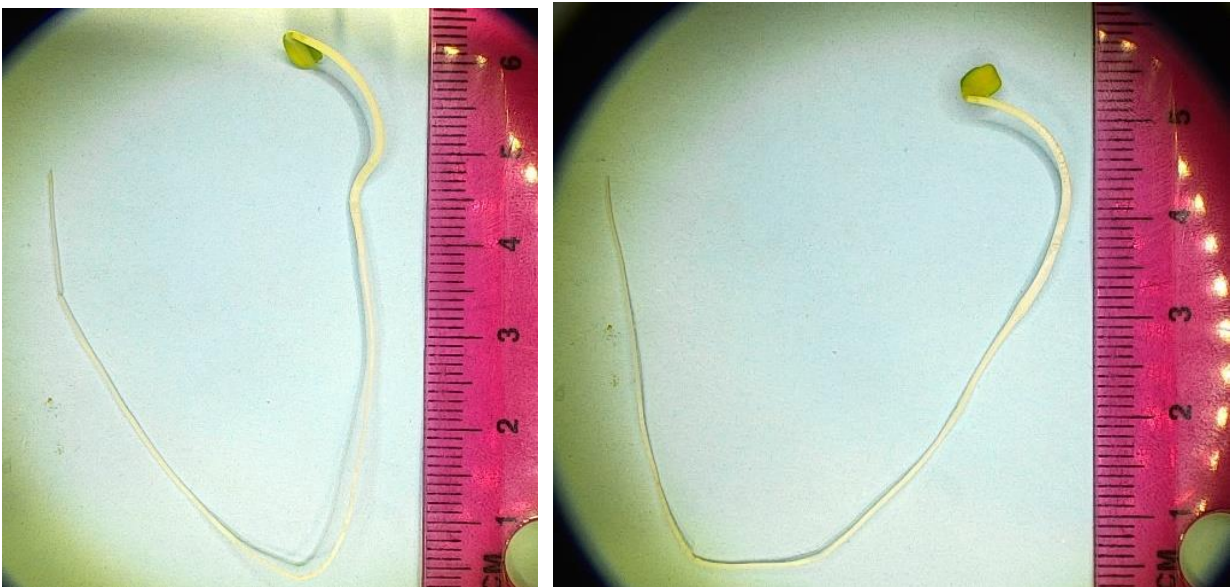
Abnormal seedlings



Ungerminated seeds



Lot 3 – Normal seedlings



Abnormal seedlings



Ungerminated seeds



## **REPORTING ON THE ISTA ORANGE CERTIFICATES**

This exercise was voluntary for all participants.

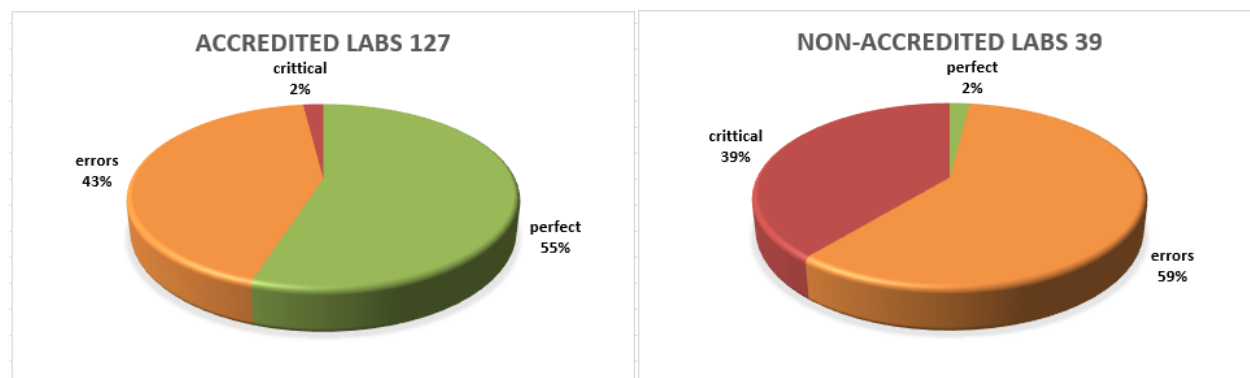
**The completion of the certificate has a training purpose only and it is not rated.**

Out of 203 participants, the completed certificate was submitted for review by 166 participants (82%).

Out of 166 submissions, 126 were from the accredited laboratories and 27 from non-accredited.

Quality of completing the certificates:

| 127 Accredited laboratories                                                                                                                                                                                                                                   |     | 39 Non-accredited laboratories |     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|--------------------------------|-----|
| NO error 70 labs                                                                                                                                                                                                                                              | 55% | NO error 1 lab                 | 2%  |
| Minor and major errors 54 labs                                                                                                                                                                                                                                | 43% | Minor and major errors 23 labs | 59% |
| Critical errors 3 labs                                                                                                                                                                                                                                        | 2%  | Critical errors 15 labs        | 39% |
| Critical errors: Certificate is invalid because of <ul style="list-style-type: none"><li>• Handwriting or</li><li>• Stamp missing or</li><li>• Signature missing or</li><li>• Date of issue missing or</li><li>• Signs of data alternation/erasures</li></ul> |     |                                |     |



Most frequent errors:

- OSD test - stating "complete" instead of "reduced" test
- OSD test - not reporting the results under "Other determinations"

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