



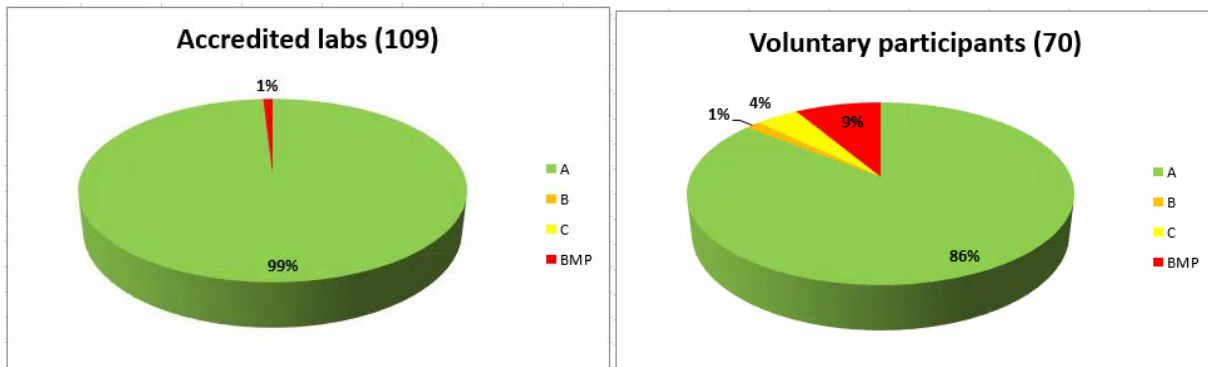
**Summary report: PT 22-2 S.ole**

**Species:** *Spinacia oleracea*

**Scope:** PUR, OSD, GER

**PURITY Ratings**

**Total number of participants = 179**



**Means and Standard Deviation**

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

<b>Categories</b>	<b>Mean Values %</b>			<b>Standard Deviation</b>		
	<b>Lot 1</b>	<b>Lot 2</b>	<b>Lot3</b>	<b>Lot 1</b>	<b>Lot 2</b>	<b>Lot 3</b>
Pure seed	99.6	96.7	98.4	0.13	0.36	0.25
Other seed	0.4	0.3	0.3	-	-	-
Inert matter	0.0	0.0	1.3	-	-	-



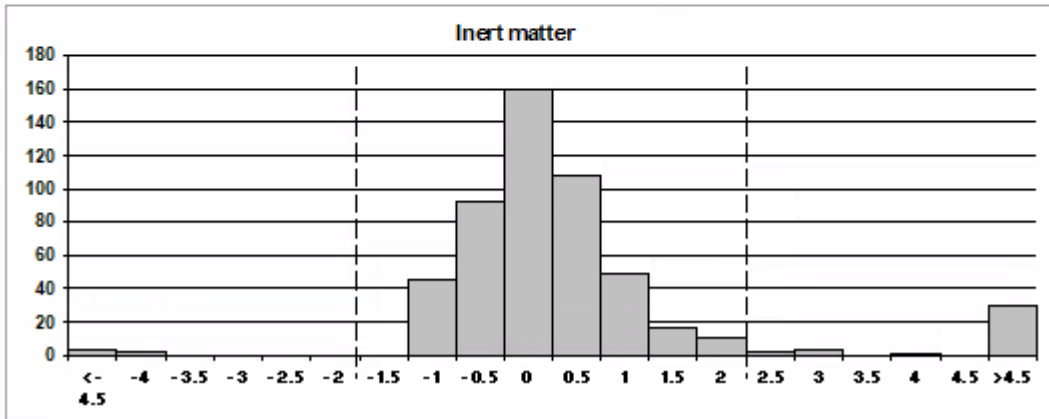
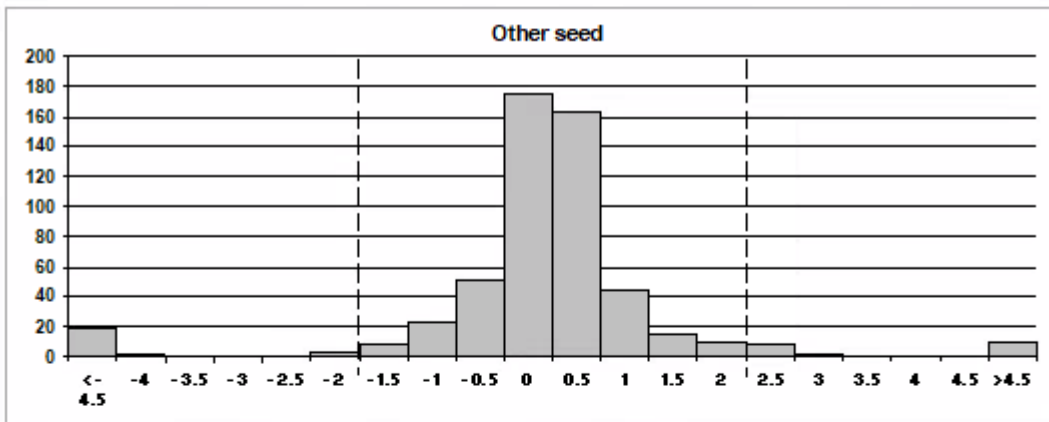
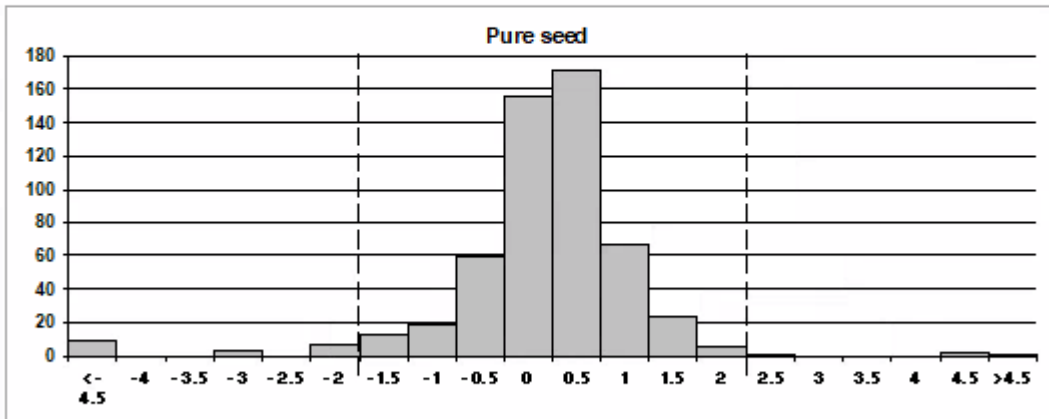
**Z-score Distribution**

**Proficiency Test Report – Test Round 22-2 S.ole**

**Species :** Spinacia oleracea

**Scope:** Purity

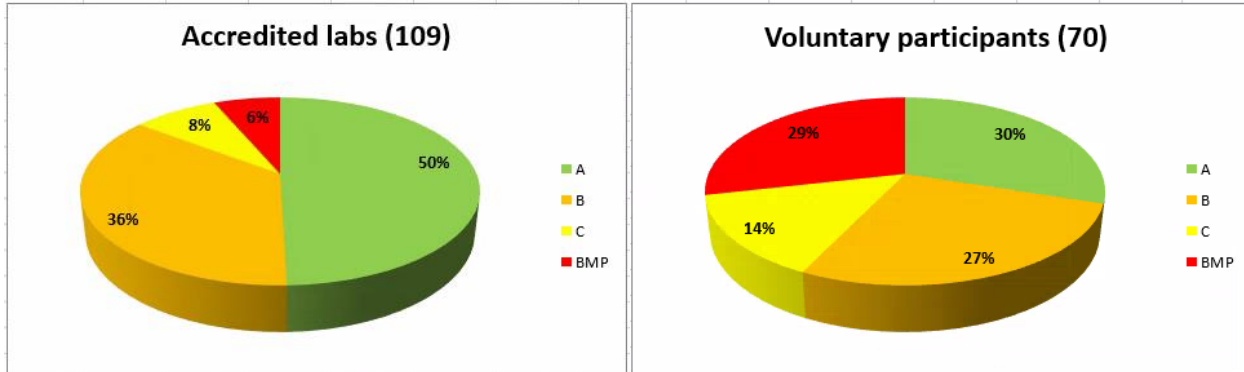
The following histograms show the frequency distributions of all participants Z-Scores for the relevant components, i.e. **Pure seed** and **Inert matter** and **Other seed**. The Z-Scores from all three samples are included in each histogram. For further explanations, please refer to the document 'The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





**OSD Ratings**

**Total number of participants = 179**



**Retrieval rates**

**Species:** *Spinacia oleracea*

**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>Fallopia convolvulus</i>	3	2.7	89.1	2
	2 <i>Limnanthes alba</i>	3	2.2	74.7	1
	3 <i>Raphanus sativus</i>	4	3.7	92.2	3
	4 <i>Urochloa ramosea</i>	4	0.9	21.4	1
Lot 2	1 <i>Crotalaria juncea</i>	3	2.7	89.5	2
	2 <i>Onobrychis viciifolia</i>	4	3.7	91.8	3
	3 <i>Pisum sativum</i>	4	2.9	73.3	1
Lot 3	1 <i>Brassica sp.</i>	4	2.7	67.5	1
	2 <i>Nemophila menziesii</i>	4	2.0	50.4	1
	3 <i>Pennisetum glaucum</i>	4	2.9	71.7	1
	4 <i>Poa bulbosa</i>	3	2.5	84.9	1

In-round rating summary

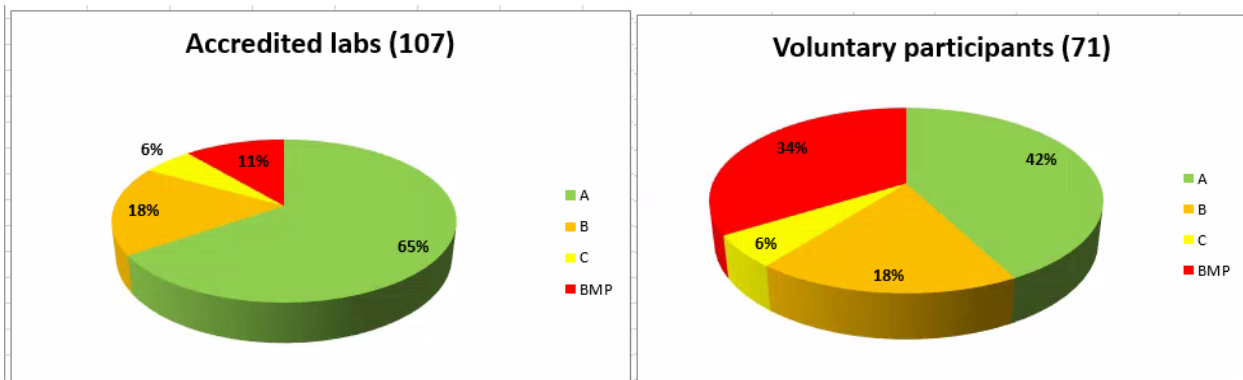
	A	B	C	BMP	Participants
#	75	58	19	27	179
%	42	32	11	15	100



**Note:** Retrieval rates for *Urochloa ramosa* spiked in the Lot1 was particularly low (21.4% only) and many participants misidentified it as *Setaria* sp.

**GERMINATION Ratings**

**Total number of participants = 178**



**Note:** there is indication confirmed by the germination committee that this species requires moderate moisture of substrate for good germination; too moist substrate jeopardies the germination process.

**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	97	92	97	1.52	2.01	1.4
Abnormal seedlings	2	4	2	-	-	-
Non-germinated seed	1	4	1	-	-	-



**Method used**

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

Temperature °C	# Users		# Users TOTAL
	Accredited labs	Voluntary participants	
10	12	9	21
15	89	54	143
20*	2	5	7
Not reported	4	3	7

20\*: temperature of 20°C is not prescribed by the ISTA Rules

Substrate	# Users		# Users TOTAL
	Accredited labs	Voluntary participants	
TP	19	28	47
BP	41	30	71
PP	45	12	57
O	1	0	1
Not reported	1	1	2

Pretreatment	# Users		# Users TOTAL
	Accredited labs	Voluntary participants	
No Treatment	65	38	103
Prechill	38	28	66
Light / no light / H <sub>2</sub> O	2	3	5
Not reported	2	2	4



**Z-score Distribution**

**Species :** Spinacia oleracea

**Scope:** Germination

The following histograms show the frequency distributions of all participants Z-Scores for the relevant components, i.e. **Normal Seedlings** 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'

