Summary results: PT 19-3 H.vul
Species: *Hordeum vulgare*  
Scope: PUR, OSD, GER, TZ

**PURITY Ratings**
Total number of participants = 182

<table>
<thead>
<tr>
<th>Categories</th>
<th>Mean Values %</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lot 1</td>
<td>Lot 2</td>
</tr>
<tr>
<td>Pure seed</td>
<td>99.7</td>
<td>99.8</td>
</tr>
<tr>
<td>Other seed</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>Inert matter</td>
<td>0.2</td>
<td>0.1</td>
</tr>
</tbody>
</table>

Means and Standard Deviation of the obligatory accredited participants calculated for the category of pure seed.
Z-score Distribution

Species: Hordeum vulgare  
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 = 182

**Accredited labs (122)**

- 80%
- 9%
- 3%
- 1%

**Voluntary participants (60)**

- 60%
- 25%
- 12%
- 3%

Retrieval rates

Species: *Hordeum vulgare*

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".

<table>
<thead>
<tr>
<th>Lot #</th>
<th>Species name</th>
<th># of seeds added</th>
<th>Average # of seeds found</th>
<th>Retrieval rate [%]</th>
<th>Assigned value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lot 1</td>
<td><em>Avena sativa</em></td>
<td>3</td>
<td>2.0</td>
<td>87.5</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td><em>Medicago sativa</em></td>
<td>4</td>
<td>3.4</td>
<td>84.3</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><em>Sorghum bicolor</em></td>
<td>4</td>
<td>3.4</td>
<td>85.9</td>
<td>2</td>
</tr>
<tr>
<td>Lot 2</td>
<td><em>Bassia scoparia</em></td>
<td>2</td>
<td>1.1</td>
<td>56.0</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><em>Fagopyrum esculentum</em></td>
<td>2</td>
<td>1.7</td>
<td>87.1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td><em>Phleum pratense</em></td>
<td>4</td>
<td>2.9</td>
<td>72.9</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><em>Setaria pumila</em></td>
<td>3</td>
<td>2.6</td>
<td>85.8</td>
<td>2</td>
</tr>
<tr>
<td>Lot 3</td>
<td><em>Echinochloa esculenta</em></td>
<td>4</td>
<td>3.4</td>
<td>84.3</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><em>Percanaria lapathifolia</em></td>
<td>2</td>
<td>1.7</td>
<td>82.7</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><em>Thlaspi arvense</em></td>
<td>3</td>
<td>2.6</td>
<td>88.0</td>
<td>2</td>
</tr>
</tbody>
</table>
GERMINATION Ratings

Means and Standard Deviation
of the obligatory accredited participants
calculated for the category of normal seedlings

<table>
<thead>
<tr>
<th>Categories</th>
<th>Mean Values %</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lot 1</td>
<td>Lot 2</td>
</tr>
<tr>
<td>Normal seedlings</td>
<td>95</td>
<td>98</td>
</tr>
<tr>
<td>Abnormal seedlings</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Non-germinated seed</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Temperature °C</th>
<th># Users Accredited labs</th>
<th># Users Voluntary participants</th>
<th># Users TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>119</td>
<td>59</td>
<td>178</td>
</tr>
<tr>
<td>25*</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>20&lt;=30*</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

* not in accordance with the ISTA Rules
<table>
<thead>
<tr>
<th>Substrate</th>
<th># Users</th>
<th># Users</th>
<th># Users</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Accredited labs</td>
<td>Voluntary participants</td>
<td>TOTAL</td>
</tr>
<tr>
<td>BP</td>
<td>90</td>
<td>44</td>
<td>134</td>
</tr>
<tr>
<td>Sand</td>
<td>18</td>
<td>10</td>
<td>28</td>
</tr>
<tr>
<td>PP</td>
<td>13</td>
<td>4</td>
<td>17</td>
</tr>
<tr>
<td>TP and Soil*</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

* not in accordance with the ISTA Rules

<table>
<thead>
<tr>
<th>Pretreatment</th>
<th># Users</th>
<th># Users</th>
<th># Users</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Accredited labs</td>
<td>Voluntary participants</td>
<td>TOTAL</td>
</tr>
<tr>
<td>No Treatment</td>
<td>65</td>
<td>51</td>
<td>116</td>
</tr>
<tr>
<td>Prechill</td>
<td>40</td>
<td>14</td>
<td>54</td>
</tr>
<tr>
<td>KNO3</td>
<td>4</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Prechill+GA3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>GA3</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>
Z-score Distribution

Species: Hordeum vulgare  
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-geminated 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'.
TETRAZOLIUM TEST Ratings

Total number of participants = 127

Means and Standard Deviation
of the obligatory accredited participants

<table>
<thead>
<tr>
<th>Categories</th>
<th>Mean Values %</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lot 1</td>
<td>Lot 2</td>
</tr>
<tr>
<td>Viable</td>
<td>96</td>
<td>98</td>
</tr>
</tbody>
</table>

Method used
overview for all participants
presented for the preparatory method, solution concentration, temperature and staining time duration

<table>
<thead>
<tr>
<th>Method</th>
<th># Users</th>
<th># Users TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Accredited labs</td>
<td>Voluntary participants</td>
</tr>
<tr>
<td>Longitudinal cut</td>
<td>65</td>
<td>47</td>
</tr>
<tr>
<td>Excision of embryo</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>Removal of the seed coat</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>No preparation*</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

* not in accordance with the ISTA Rules
<table>
<thead>
<tr>
<th>Solution %</th>
<th># Users</th>
<th># Users TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Accredited labs</td>
<td>Voluntary participants</td>
</tr>
<tr>
<td>0.1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>0.5</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>1.0</td>
<td>66</td>
<td>54</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Temperature °C</th>
<th># Users</th>
<th># Users TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Accredited labs</td>
<td>Voluntary participants</td>
</tr>
<tr>
<td>18 and 20</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>25 and 30</td>
<td>68</td>
<td>54</td>
</tr>
<tr>
<td>35 and 40</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Staining time (hours)</th>
<th># Users</th>
<th># Users TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Accredited labs</td>
<td>Voluntary participants</td>
</tr>
<tr>
<td>0.75 and 1.5</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>2 and 3</td>
<td>65</td>
<td>54</td>
</tr>
<tr>
<td>4 and 5.5</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>18</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>
Z-score Distribution

Species: Hordeum vulgare                     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’.