Preface to the 2020 Edition of the ISTA Rules

Since 2014, the *International Rules for Seed Testing* (ISTA Rules) are primarily available in electronic form only. The ISTA Rules can be downloaded as a complete PDF file or as individual chapters from:

http://www.ingentaconnect.com/content/ista/rules

If required, users of the ISTA Rules can print their own copies. For further information on the ISTA Rules, see:

http://www.seedtest.org/rules

The electronic version includes the English, French, German and Spanish versions of the ISTA Rules. If there are any questions on interpretation of the ISTA Rules, the English version is the definitive version.

Seed health testing methods

Previously, the seed health testing methods were published as a separate Annexe to Chapter 7 of the ISTA Rules. They are now available as separate method sheets from the ISTA web site at:

http://www.seedtest.org/seedhealthmethods

Details of changes

The 2020 changes are editorial corrections or Rules changes adopted at the Ordinary General Meeting held at Hyderabad, India, in June 2019. Edits were made in Adobe InDesign by Vanessa Sutcliffe of HeartWood Editorial (www.heartwoodeditorial.co.uk).

The changes in the text content from the previous edition of the ISTA Rules are listed below. They can be displayed as yellow highlighted text as a ‘layer’ within the electronic copy with comments on what has changed.

For the previous history of amendments to the ISTA Rules, see the Prefaces for 2003 to 2019 on the ISTA website.

Ernest Allen, ISTA Rules Committee Chair

Susan Alvarez, ISTA Rules Committee Vice-Chair

ISTA Secretariat
Changes to the ISTA Rules for 2020

General editorial

Re-labelling of Tables throughout the Rules for consistency, with Chapter number and a capital letter; subsequent cross-referencing updated:
- Table 2.1 becomes Table 2A;
- Table 2.2 becomes Table 2B;
- Table 2A becomes Table 2C;
- Table 2B becomes Table 2D;
- Table 2C becomes Table 2E;
- Table 2D becomes Table 2F;
- Table 2E becomes Table 2G;
- Table 2F becomes Table 2H;
- Table 2G becomes Table 2I;
- Table 4.1 no longer has a title, consistent with the similar table under section 3.5.1;
- Table 8.5 becomes Table 8B;
- Table 8.6 becomes Table 8C;
- Table 8.7 becomes Table 8D;
- Table 8.8 becomes Table 8E;
- Table 8.9 becomes Table 8F;
- Table 8.10 becomes Table 8G;
- Table 8.11 becomes Table 8H;
- Table 8B becomes Table 8I;
- [changed for 2019 Rules] Table 17.1 to Table 17A;
- [changed for 2019 Rules] Table 17.2 to Table 17B;
- [changed for 2019 Rules] Table 17.3 to Table 17C;
- [changed for 2019 Rules] Table 17.4 to Table 17D.

Changes to nomenclature throughout the Rules, according to the 7th edition of the ISTA List of Stabilised Plant Names, prepared by the Nomenclature Committee.

Introduction

1-1: Sentences added in response to a Motion concerning ‘ISTA’s position on integrating advanced technologies in classical seed testing methods’ discussed at 2018 OGM.

Chapter 1

1.3: Editorial change requested by BSC to correct erroneous reference; approved by BSC by vote.
1.5.2.2: Editorial change required to clarify placement of specified ‘species’ or ‘inert matter’ in the Purity section on the OIC.
1.5.2.4: Phelipanche added where Orobanche is mentioned, with the assumption that the Orobanche/Phelipanche species concerned are parasitic plants with small dust-like seeds.
1.5.2.6: It was no longer obvious why the % of normal seedlings obtained at the end of the test period, when the test is extended, must be reported. This prescription has been removed from the Rules.
1.5.2.20: Editorial change to ‘Seed mixtures’ under ‘Certificates’. As a general principle, any statement of the applicant may be reported only in the space reserved for applicant statements/declarations. This space is reserved at the top of the ISTA certificate under ‘Stated by applicant’. Therefore, the components of seed mixtures as reported by the applicant cannot be reported under ‘Analysis results’ as this space is reserved for laboratory results obtained by an ISTA laboratory through seed testing.
1.5.2.20.1: Clarification on how to report purity content of seed mixtures (i.e. the percentage by weight of pure seed, inert matter, and other seeds).

Chapter 2

2.5.1.1: Revision discussed by the BSC and approved by vote, to specify that seed may also be sampled from the seed stream, including before it enters containers, as for automatic sampling. This revision is consistent with wording in Rule 2.5.1.3 ‘Taking primary samples’.
2.5.1.5: Revision to clarify procedures for obtaining submitted samples for moisture testing; proposal discussed by BSC and approved by vote.
2.5.1.6: ‘Packing’ added to heading. Many seed companies have ISTA accredited laboratories, where the warehouse in which the samples are taken and the testing laboratory are on the same premises, making it superfluous to seal the sample if the ISTA Sampler delivers it personally to the laboratory. The former wording was not consistent with 2.5.4.3, which already makes provision for this. Proposal discussed by BSC and approved by vote.
2.5.2.2, 2.5.2.1d and e: For variable and rotary dividers it is not necessary to mix the composite sample before dividing, as mixing of the seed takes place during the dividing process (stated in the ISTA Sampling Handbook). In the Rules it is required that ‘the seed sample must first be thoroughly mixed’ and the auditors apply this strictly, also for variable and rotary dividers. The exclusion of the pre-mixing requirement of these two dividers is now included in the Rules. Proposal discussed by BSC and approved by vote.
2.5.2.2: Two paragraphs deleted. The first paragraph has been moved to 2.5.1.5 as it is more applicable to obtaining a submitted sample (for moisture) than it is for sample reduction methods. The deletion of the second paragraph is for consistency. Obtaining working samples for specific tests is generally specified in the applicable Chapters. This paragraph was a duplication of what is already stated in 9.2.5.2. Proposal was discussed by BSC and approved by vote.
2.5.2.2.3: Revision requested by BSC for readability and to remove the part that the spoon method is the recommended method for seed health testing. Proposal discussed by BSC and approved by vote.

2.5.4.2.1: *Festuca trachyphylla* was erroneously omitted from the Species group 2 list some years ago. It was part of the experiment and should be included.

2.5.4.4: Editorial change requested by BSC to correct erroneous reference; approved by BSC by vote.

**Table 2C (formerly 2A):** Updates to nomenclature as a result of changes to the *ISTA List of Stabilised Plant Names.*

**Table 2C (formerly 2A) Part 3:** Lot sizes and sample sizes moved from Table 2C (formerly 2A) Part 2 to Part 3 for *Malva sylvestris,* as this is not a woody species.

**Table 2C (formerly 2A) Part 3:** Inclusion of *Salvia hispanica* L. to the ISTA Rules; proposed sample and maximum seed lot size submitted to BSC by Purity Committee based on thousand-seed weight determinations. Discussed by the members of BSC and approved by vote.

**Chapter 3**

3.2.3: Editorial change required due to species in Taxodiaceae being absorbed into Cupressaceae. Corrections approved by Nomenclature Committee.

**Table 3B Parts 1 and 2:** Updates to nomenclature as a result of changes to the *ISTA List of Stabilised Plant Names.*

**Chapter 4**

Throughout Chapter, *Phelipanche* added where *Orobanche* is mentioned, with the assumption that the *Orobanche/Phelipanche* species concerned are parasitic plants with small dust-like seeds.

**Chapter 5**

5.6.4: Precision added relating to the extension of the duration of the germination test, and adapting the date of the final count when it ends on a non-working day.

5.9: It was no longer obvious why the % of normal seedlings obtained at the end of the test period, when the test is extended, must be reported. This prescription has been removed from the Rules.

**Table 5A:** Updates to nomenclature as a result of changes to the *ISTA List of Stabilised Plant Names.*

**Table 5A Part 1:** Organic growing media added as a primary media for the germination of *Glycine max.* Proposal supported by a validation study done within the Germination Committee.

**Table 5A Part 1:** *Organic growing media added as a primary media for the germination of *Phaseolus vulgaris.* Proposal supported by a validation study done within the Germination Committee.

**Table 5A Part 1:** The Germination Committee has conducted a validation study on *Zea mays* to compare the results obtained with TP method using CCP, to the results obtained with the other ISTA approved substrates.

**Table 5A Part 3:** Germination method moved from Table 5A Part 2 to Part 3 for *Malva sylvestris,* as this is not a woody species.

**Table 5A Part 3:** Germination methods for *Salvia hispanica* included in the Rules, following validation studies carried out within the Germination Committee.

**Chapter 6**

**Table 6A:** Updates to nomenclature as a result of changes to the *ISTA List of Stabilised Plant Names.*

**Chapter 7**

**Table 7A:** Updates to nomenclature as a result of changes to the *ISTA List of Stabilised Plant Names.*

**Method 7-019a:** Addition of *Xanthomas campestris* pv. *raphani* in the plating assay as the pathovars are indistinguishable on the semi-selective media used. Inclusion of a process flow diagram in Background section to reflect optional and mandatory steps in the method. Proposal approved by a vote of Seed Health Committee.

**Method 7-025:** Improvements to the description of the method and detailed descriptions of nematode identification. Figure added to assist in nematode identification. Proposal approved by vote and supported by Seed Health Committee.

**Chapter 8**

8.5.3: Editorial change required due to an incorrect cross reference to performance approved methods; corrections approved by Variety Committee.

**Chapter 9**

9.2.4.2: Changes to wording for oven requirements, to avoid specifying ‘ventilation’ and ‘capacity’ of the oven. The need to check whether the oven is fit for purpose or not is highlighted and text has been revised for readability. Proposal approved by Moisture Committee.

9.2.4.4: Adding additional possibilities to desiccator, such as perforated porcelain or other material instead of metal. Proposal approved by Moisture Committee.
9.2.5.1: References corrected and optimised where needed; an additional reference is added, and it is stressed that the correct sample size shall be used and where to find it. Proposal approved by Moisture Committee.

9.2.5.1, 9.2.5.2, 9.2.5.4 and 9.2.5.5: Changes to time limits for drawing working samples; time limits are given for mixing, grinding, cutting and drawing the working sample separately. Proposal approved by Moisture Committee.

Table 9A: Updates to nomenclature as a result of changes to the ISTA List of Stabilised Plant Names.

9.3.2.4.1: Addition of requirement for storing the remainder of the submitted sample for moisture using moisture meters; addition of the same requirement to storing time as for the submitted sample using the oven method. Proposal approved by Moisture Committee.

Chapter 15

15.3 and Table 15B: Addition of *Triticum aestivum* to the radicle emergence (RE) test, following a method validation study illustrating that the test identifies differences in vigour (field emergence) of seed lots of this species and is repeatable and reproducible.

15.8.4.4.1: Removal of requirement for a control seed lot for the radicle emergence (RE) test. Following their experience with the test, the Vigour Committee believes that when the test is completed following the prescribed ISTA Rules protocol, the use of a control seed lot is not necessary.

Chapter 18

18.8: Editorial change to ‘Reporting results’. As a general principle, any statement of the applicant may be reported only in the space reserved for applicant statements/declarations. This space is reserved at the top of the ISTA certificate under ‘Stated by applicant’. Therefore, the components of seed mixtures as reported by the applicant cannot be reported under ‘Analysis results’ as this space is reserved for laboratory results obtained by an ISTA laboratory through seed testing.

18.8.1: Clarification on how to report purity content of seed mixtures (i.e. the percentage by weight of pure seed, inert matter, and other seeds).