SASA

ISTA Germination Committee

Presentation to the Ordinary Meeting

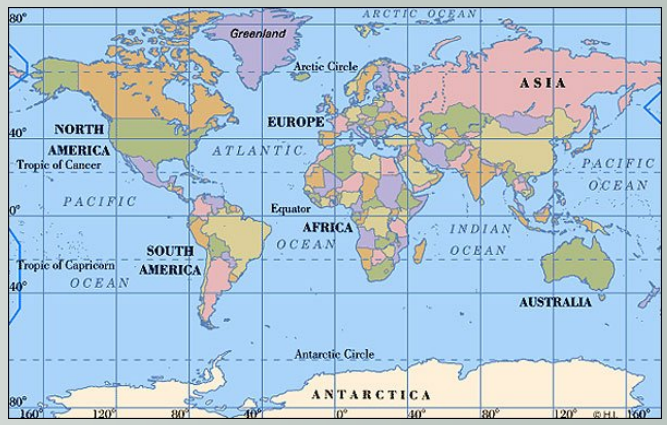
10 May 2007

Germination Committee Presentation

1. Welcome and Introduction
2. Summary of the work of the committee over the last 3 years
3. Programme of work for the next 3 year period
4. Questions from the audience

Committee Membership

Chair:	1	Ronald Don	United Kingdom
Vice-chair:	2	Sylvie Ducournau	France
Members:	3	Doris Groth	Brazil (Retired from committee 2006)
	4	Krystyna Kolasinska	Poland
	5	Joël Léchappé	France
	6	Lea Mazor	Israel
	7	Gillian McLaren	United Kingdom
	8	Günter Müller	Germany
	9	Enrico Noli	Italy
	10	Zdenka Procházková	Czech Republic
	11	Pamela Joan Strauss	South Africa
	12	Hakon Tangeras	Norway
	13	Grethe Tarp	Denmark
	14	Anny van Pijlen	Netherlands
	15	Loren Wiesner	United States (Retired from committee 2005)
	16	Kari Fiedler	United States (Appointed 2005)
	17	Takayuki Okuda	Japan (Appointed 2006)



The aims of the Germination Committee are (mainly):

- To update and contribute to improvements in germination test methods
- To improve the germination section of the ISTA rules
- To create training material e.g. Handbooks
- To introduce method for species not covered by the rules. Specific attention being paid to tropical and subtropical species.
- To share the knowledge among laboratories and seed testing professionals.
- To facilitate the exchange of information and improve standardisation.

Achievements of the Committee over the last 3 years

Introduction of New Species into Rules

- ✓ *Crambe abyssinica*
- ✓ *Triticum dicoccum*
- ➢ Work on validation of Tropical Species initiated by ISTA Task Force (Joseph Ahenda gives a report of progress in the new issue of Seed Testing International)
- ➢ Work initiated on the introduction of wild flower species and salad Rocket

Achievements of the Committee over the last 3 years

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Introduction of Rules Changes

- ✓ Revision of Substrate Definitions in line with ISO definitions for Growing Media
- ✓ Use of Organic Growing Media (Compost) as a Primary substrate for the germination of Sunflower (*Helianthus annuus*)
- ✓ The use of KNO3 for dormancy breaking in *Hordeum vulgare*.
- ✓ Germination testing of *Betula pendula* and *B. pubescens* using 4 by 100 seed replicates

Achievements of the Committee over the last 3 years

Proposed Rules Changes

- The use of KNO3 in the germination testing of Brassicas
- Incorporating ISTA Seedling Evaluation Handbook abnormal seedling codes into the Rules
- Merger of Germination Rules and Annexes and the removal of duplicate text

Future Proposals

- Review and Improvement of Rules
- The use of crepe paper and sand as a germination media

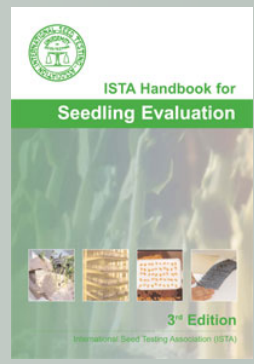
Achievements of the Committee over the last 3 years

Revision of Germination Chapter and Seedling Evaluation Handbook to reflect Quality Assurance requirements.

- ✓ Rules now give guidance on tolerance checking requirements for normal seedlings, abnormal seedlings and dead seed.

New edition of Germination Handbook published.

Incorporates :



- ✓ Changes in media definitions
- ✓ Guidance on media quality control checks, pH, conductivity, water retention and innocuity
- ✓ Guidance on temperature measurement
- ✓ Revisions in guidance on seedling evaluation of *Lolium*

Examples of additions to handbook

Temperature measurement

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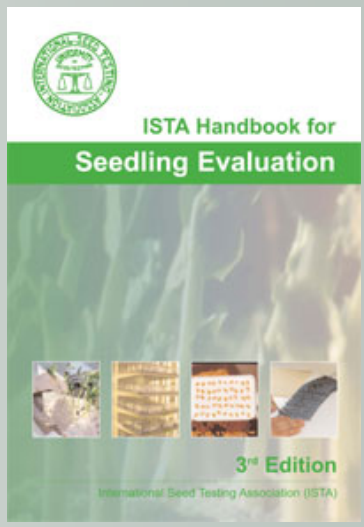

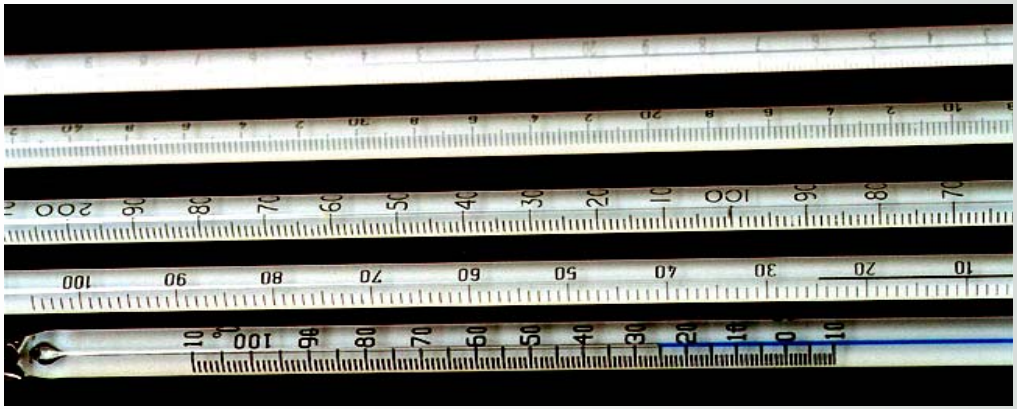

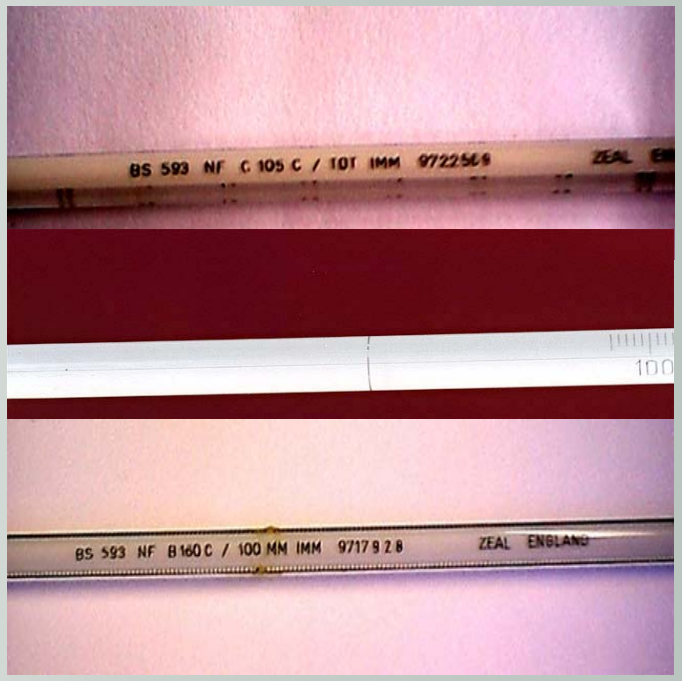

Examples of additions to handbook

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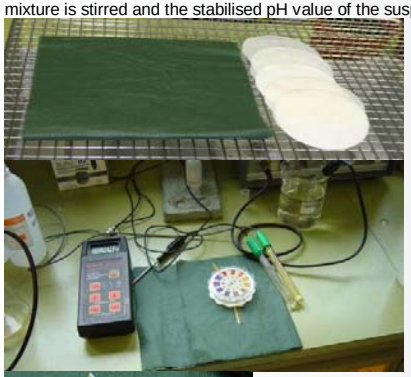
Measurement of pH

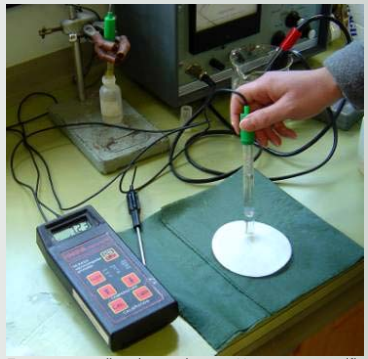
For Sand and Organic Growing Media, one volume of media are mixed with 5 volumes of water that is to be used for germination tests[1]. The mixture is stirred for 5 min and then allowed to stand for a minimum of 2 hours and a maximum of 24 hours. After standing the mixture is stirred and the stabilised pH value of the suspension solution measured.



For Paper Media samples are moistened, with water that is to be used for germination tests[1] and the pH is measured on the surface of the paper.

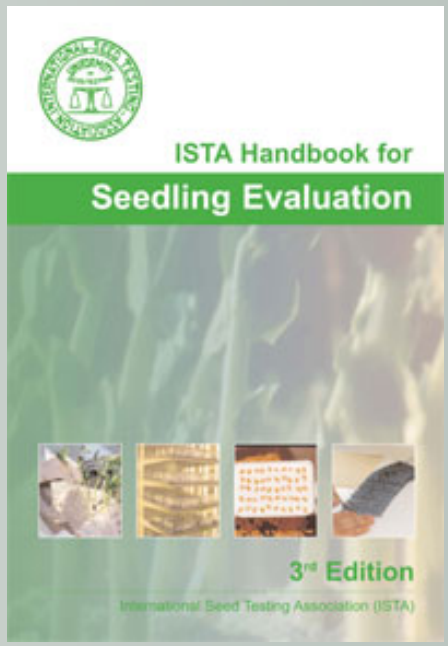
The pH is measured using a calibrated pH meter or pH paper

Using pH paper to measure the pH of paper germination media.



For paper media when using a pH meter a specific probe manufactured for measuring the pH on the surface of paper must be used.

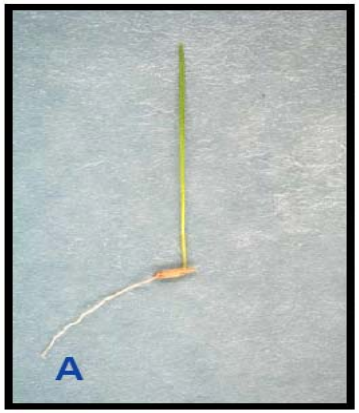
Surface probe for measuring the pH of paper

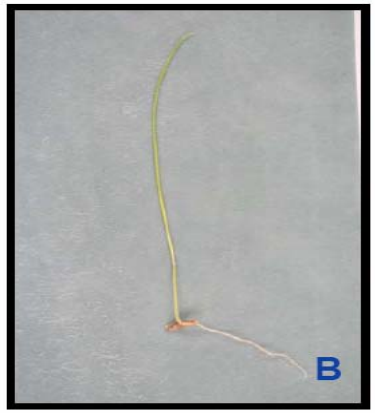


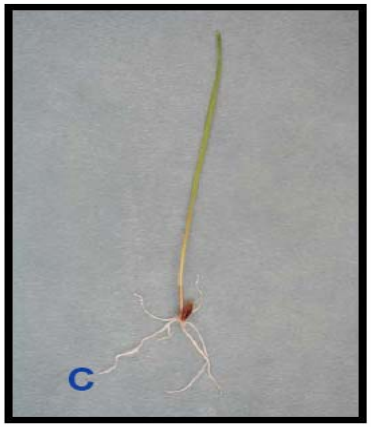
[1] [1] It is recommended that the conductivity of the water should be < 0,2 milliSiemens/m and its pH should be > 5.6 at 25°C.

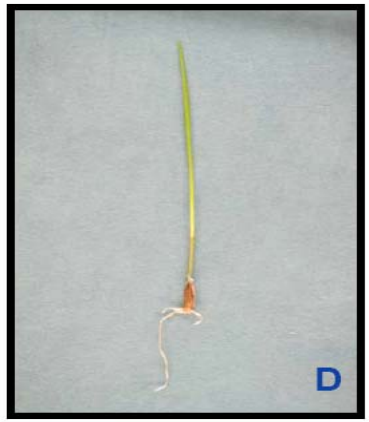
Examples of additions to handbook

Assessment of *Lolium*







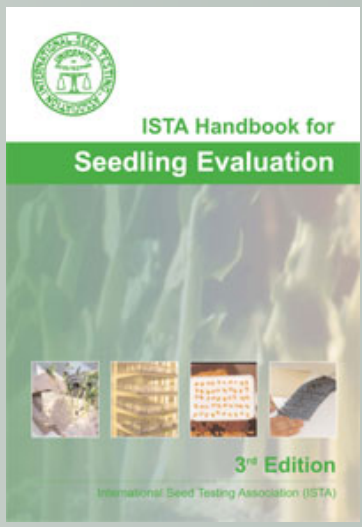


A – Normal; primary root >50% shoot length

B – Abnormal; primary root <50% shoot length

C – Normal; primary root >30% shoot length and primary and secondary roots>60% of shoot length

D- Abnormal: primary root >30% shoot length but primary and secondary roots <60% of shoot length



Questions to the Committee

Large number of questions are received by the committee on a range of topics from ISTA and non-ISTA members and labs all over the world:

A flavour of the most recent examples:

Hungary	Request for the inclusion of additional germination method in the ISTA Rules for *Brassica* spp. and *Sinapis* spp.
Norway	Relationship between germination and Tetrazolium test results of sprouted temperate cereals
Norway	Practicalities of applying growing media specifications
Japan	Evaluation of necrosis at point of attachment of cotyledons
Japan	Evaluation of cotyledons of abnormal shape in Cucurbitaceae
Switzerland	Effectiveness of *Rhizobial* inoculums of Alfalfa
Australia	When to end a germination test
Germany/Indonesia	Use of HNO_3 or KNO_3 to break dormancy of rice
Lithuania	Promoting beet germination

Programme for the next working period

Validation of new species

Tropical Species

Improvement of the Rules

Improvement of the Seedling Evaluation Handbook

Workshops

A few words of thanks

The Germination Committee

The Secretariat

and

The Staff of the OSTS in Scotland