



## **INTERNATIONAL SEED TESTING ASSOCIATION**

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### **Activity Reports 2006 of all ISTA Bodies**

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This document was prepared by the Technical Committees and the Secretariat of the Association and endorsed by the ISTA Executive Committee to be submitted to the ISTA Ordinary Meeting 2007 for acceptance by the nominated ISTA Designated Members voting on behalf of their respective Government.

It is submitted to all ISTA Designated Authorities, ISTA Members and ISTA Observer Organisations for information two months prior to the ISTA Ordinary Meeting.

It contains the Reports 2006 of the Executive Committee, of the Secretary General including the financial statements of the Association 2006 and of the Boards, Committees and Task Forces of the International Seed Testing Association.

It will be discussed and voted on at the Ordinary Meeting 2007 to be held on Friday, May 11, 2007 at the Rafain Hotel, Iguacu Falls, Parana, Brazil under Agenda points 5. Report of the Executive Committee, 6. Report of the Secretary General and 11. Consideration and Adoption of Reports.



## Activity Reports 2006 of all ISTA Bodies

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## **A. Report of the Executive Committee (ECOM)**

### **1. Composition of the Executive Committee**

The Executive Committee for the period 2004-2007 includes the following members elected by the ISTA voting delegates at the last ISTA Congress:

Officers:

President:	Pieter Oosterveld	Netherlands
1 <sup>st</sup> Vice President:	Katalin Ertsey	Hungary
2 <sup>nd</sup> Vice President:	Silmar T. Peske	Brazil

Members-at-large:	Joseph O. Ahenda	Kenya
	José M. Chavez Bravo	Mexico
	John G. Hampton	New Zealand
	Steve Jones	United Kingdom
	Joël Léchappé	France
	Susan Maxon	United States
	Grethe Tarp	Denmark
	Rita Zecchinelli	Italy

### **2. Meetings of the Executive Committee**

In the year 2006, the Executive Committee met four times. It held its annual business meeting at the premises of the ISTA Secretariat in Zurich, Switzerland, February 13-5, 2006 met for the preparation of the ISTA Ordinary Meeting on June 25, 2006, made an evaluation of the Annual Meeting and discussed and decided on several business items on June 30, 2006 and held its business meeting for the planning of the year 2007 on November 27-29, 2006 at the premises of the NAK in Emmeloord, The Netherlands, due to the early date of the 28<sup>th</sup> ISTA Congress in 2007.

Furthermore, the Officers (President and 1<sup>st</sup> Vice-President) and the Secretary General got together on October 31<sup>st</sup> at the premises of the ISTA Secretariat in Zurich, Switzerland for a meeting in preparation of the upcoming Executive Committee meeting in November 2006.

### **3. Discussion items**

In the year 2006 the Executive Committee concentrated its work on the tasks as laid down in the ISTA Constitution Article VII and the following important projects:

- Establishment of a new ISTA Strategy 2007-2010
- Establishment of an international ISTA Seed Analyst Training Programme
- Establishment of a generic ISTA Method Validation Programme and the foundation of an Advisory Group supporting the Technical Committees in this task.
- Revision and Enhancement of the ISTA By-Laws. (Establishment of a revised and enhanced set of Rules of Order for the Ordinary Meeting of the Association, Discussion on the task and responsibilities of Technical Committees and Chairpersons.)
- Revision and Enhancement of the ISTA Accreditation Programme. (Discussion on the Scope of Accreditation).

- Revision and Enhancement of the ISTA Constitution (Introduction of two new ISTA membership categories).
- Revision and Enhancement of the ISTA Congresses and ISTA Annual Meetings

Draft proposals for the discussion within the Executive Committee were performed by the ISTA Secretariat and the seven Working Groups of the Executive Committee:

1. Working Group on Accreditation
2. Working Group on Fund raising
3. Working Group on the updating of the Constitution and By-Laws
4. Working Group on Seed Analyst Training
5. Working Group on Certificates
6. Working Group on ISTA Congresses
7. Working Group on Method Validation

At the ISTA Ordinary Meeting on June 28-29, 2006, the ISTA voting delegates approved nearly all proposals from the ISTA Executive Committee and supported the proposals that were submitted for discussion.

#### **4. International representation**

One overall interest of the Executive Committee is the interaction with other important international organisations in the area of seed, as it is essential for ISTA to signify the interests of its members at these meetings.

The highlight in the year 2006 was clearly the signing of the Memorandum of Understanding with FAO on further training and education programmes.

Corresponding to the strategic direction of a closer involvement of the seed industry and company seed testing laboratories in the affairs of ISTA, the Association continued to be represented at the annual ISF Congress, and also at the annual meetings of five regional seed associations: AFSTA (Africa), APSA (Asia & Pacific), AOSA/SCST, EESNET (Eastern Europe) and ESA (Europe).

As usual ISTA delegates participated in the annual meeting of the OECD Seed Schemes.

The already close collaboration with the Asia and Pacific Seed Association (APSA) was continued mainly in the area of training and education and the accreditation of seed testing laboratories in Asia. Concrete plans of the collaboration have been developed for the year 2007.

Also the intensive collaboration with the African Seed Trade Association (AFSTA) was continued. Concrete projects have been developed with our partners FAO and AFSTA to increase the number of accredited laboratories in Africa.

ISTA has been invited by several other organisations to participate in committees and working groups of these organisations mainly in the area of seed testing for specified traits (see report of the ISTA GMO Task Force on page 88).

The following table gives an overview of the meetings with ISTA participation (ECOM members or the Secretary General) in 2006:

<b>Date</b>	<b>Meeting</b>	<b>ISTA Delegate(s)</b>	<b>Place, Country</b>
January 12	Meeting with ILAC Representative	M. Muschick [SG]	Wangen, Switzerland
February 13 – 15	ISTA Executive Committee Meeting	ECOM and M. Muschick [SG]	ISTA Secretariat, Switzerland
March 28 – 31	AFSTA Annual Meeting	M. Muschick [SG]	Entebbe, Uganda
April 3 – 7	First Session of the Commission on Phytosanitary Measures (CPM)	M. Muschick [SG]	Rome, Italy
April 24	Signature of Memorandum of Understanding with FAO	P. Oosterveld [President], M. Muschick [SG]	Rome, Italy
May 29 – 31	ISF Congress	P. Oosterveld [President], M. Muschick [SG]	Copenhagen, Denmark
June 3 – 8	AOSA/SCST Annual Meeting	K. Ertsey [1 <sup>st</sup> Vice President]	Indianapolis, United States
June 5 – 6	Meeting with the Bureau and the Secretariat of the CPM	M. Muschick [SG]	Rome, Italy
June 7	ESA Working Group Meeting on GM Analytics	M. Muschick [SG]	Brussels, Belgium
June 10 – 11	ILAC Executive Committee Meeting	M. Muschick [SG], M. Rösch [Head of Accreditation Department]	Espoo, Finland
June 26 – 29	ISTA Annual Meeting	ECOM, TCOMs and M. Muschick [SG]	Zurich, Switzerland
July 10	Meeting with the Director of the OECD Directorate for Food, Agriculture and Fisheries	P. Oosterveld [President], M. Muschick [SG]	Paris, France
August 8 – 10	Annual Meeting of the OECD Seed Schemes	P. Oosterveld [President]	Iguaçu Falls, Brazil
August 14 – 18	ABRATES XX Seminário Panamericano de Sementes	P. Oosterveld [President]	Fortaleza, Brazil
September 7 – 8	1 <sup>st</sup> Meeting of the Organising Committee of the 'First Global Conference on GMO Analysis'	M. Muschick [SG]	Ispira, Italy
October 4 – 6	OECD Forest Seed & Plant Scheme Biennial Meeting	G. Schuon	Siofok, Hungary
October 15 – 17	ESA Annual Meeting	P. Oosterveld [President] and M. Muschick [SG]	Brussels, Belgium



October 22 – 24	EESNET Meeting	K. Ertsey [1 <sup>st</sup> Vice-President]	Opatia, Croatia
October 24 – 25	2 <sup>nd</sup> Meeting of the Organising Committee of the 'First Global Conference on GMO Analysis'	M. Muschick [SG]	Como, Italy
October 26 – 27	8 <sup>th</sup> Official ENGL Meeting	M. Muschick [SG]	Ispra, Italy
October 31	ISTA Officers Meeting	P. Oosterveld [President], K. Ertsey [1 <sup>st</sup> Vice President] and M. Muschick [SG]	ISTA Secretariat, Switzerland
November 6 – 14	ILAC General Assembly	P. Oosterveld [President]	Cancun, Mexico
November 13 – 16	APSA Asian Seed Congress	M. Muschick [SG]	Kuala Lumpur, Malaysia
November 20 – 23	UPOV Working Group on Biochemical and Molecular Techniques (BMT) Meeting	M. Muschick [SG]	Seoul, Republic of Korea
November 27 – 29	ISTA Executive Committee Meeting	ECOM and M. Muschick [SG]	Emmeloord, The Netherlands
December 5 – 8	ASTA Corn & Sorghum Conference	M. Muschick [SG]	Chicago, United States

## **B. REPORTS OF THE SECRETARY GENERAL, PROFICIENCY TEST COMMITTEE, RULES COMMITTEE AND EDITORIAL BOARD**

### **1. ISTA Membership**

#### **1.1. Developments with voting countries**

In 2006 the number of ISTA voting countries increased, due to the designation of Kyrgyzstan and Botswana members by their respective governments.

Table 1. gives an overview of the developments with voting countries over the last four years.

**Table 1. Voting countries of the years 2003 - 2006**

	2003	2004	2005	2006
Voting countries	72	69	71	73

#### **1.2. Developments with the Membership**

##### **a) ISTA Laboratory Membership**

Compared to the year 2005, ISTA achieved a net increase of four member laboratories.

Table 2. gives an overview of the developments with the number of member laboratories over the last four years.

**Table 2. Member laboratories of the year 2003 - 2006**

	2003	2004	2005	2006
Member laboratories*	157	163	170	174

\* Note: each Member Laboratory includes one Personal Member

Regarding the changes, ISTA granted new membership to seven laboratories: one new laboratory member from Western Europe, two from Eastern Europe and four from Asia and Pacific. Three laboratories terminated their membership with ISTA: two laboratory members from Western Europe and one from Africa.

Table 3. and Table 4. give an overview on the new members and the members terminating their membership.

**Table 3. Newly granted Laboratory Membership (January 1<sup>st</sup> 2006 to December 31<sup>st</sup> 2006), name of the laboratory's Personal Member in brackets**

Country	Member Laboratory and Personal Member
Croatia	Forest Research Institute (Maja Gradecki-Postenjak)
Hungary	Pioneer Seedplant Laboratory (Zsuzsanna Pásztorné Kispál)

India	Nunhems India PVT Ltd (ASN Reddy)
India	Bejo Sheetal Seeds Pvt. Ltd. (Sameer S. Agrawal)
Indonesia	Development Agencies Seed Quality of Food Crop and Horticulture (Akhmad Riyadi Wastra)
Iran	Oil Seeds Research & Development Co. (Negin Dastafshar)
United Kingdom	Central Science Laboratory (Kelvin J. D. Hughes)

**Table 4. Laboratory Membership terminations (January 1<sup>st</sup> 2006)**

Country	Member Laboratory
Italy	Laboratoria Ricerca e Analisi Sementi
South Africa	Sakata-Mayford Seed Testing Laboratory
Sweden	Seed Laboratory, Department of Silviculture, The Swedish University of Agricultural Sciences

Table 5. gives an overview of the regional distribution of all ISTA Member Laboratories as well as the laboratory status separated into governmental, private and company member laboratories.

**Table 5. Regional distribution of ISTA Member Laboratories**

Region	Subtotal		Private independent		Seed company		Governmental	
	year		year		year		year	
	2005	2006	2005	2006	2005	2006	2005	2006
Africa	17	16	0	0	4	3	13	13
Asia & Pacific	43	47	3	4	12	14	28	29
East Europe	31	33	0	0	3	5	28	28
West Europe	59	58	3	3	14	14	42	41
North America	9	9	4	4	1	1	4	4
South America	11	11	0	0	1	1	10	10
<b>Total:</b>	170	174	10	11	35	38	125	125
174 member laboratories worldwide in 2006								

**b) ISTA Personal Membership**

The number of personal members in the year 2006 compared to the year 2005 decreased by four persons.

Table 6. gives an overview regarding the development of the personal membership over the last four years.

**Table 6. Personal Members for the years 2003-2006**

	2003	2004	2005	2006
<b>Personal Members</b>	48	49	50	46

Personal Membership was granted to five persons. Two are from European countries, one from Africa and two from Asia and Pacific. Nine personal members terminated their membership, four from Western Europe, one from Africa, one from North America, one from South America and two from Asia.

Table 7. and Table 8. give a detailed overview on the new personal members and the members terminating their membership.

**Table 7. Newly granted Personal Membership (January 1<sup>st</sup> 2006 to December 31<sup>st</sup> 2006)**

Country	Personal member
China	Yu Ming
Spain	Grigorio Montero Gonzalez
France	Nathalie Danezan
Taiwan	Ching-Joung Tsai
Zambia	Mable M. Simwanza

**Table 8. Personal Membership terminations (January 1<sup>st</sup> 2006)**

Country	Personal member
Colombia	Hernando Montenegro Torres
Denmark	Torben Borggaard
Denmark	Alice Klausen
Germany	Lutz Grohmann
Germany	Petra Schwarz
South Africa	Jane K. Skhosana
Syria	Abbas Abbas
Sri Lanka	Sarath L. Weerasena
Unites States	DaNell Jamieson

Table 9. gives a detailed overview on the ISTA personal membership mutations.

**Table 9. Mutation of Personal Membership (January 1<sup>st</sup> 2006 to December 31<sup>st</sup> 2006)**

Country	Former member	New member
Belgium	Henk Joos	Elizabeth Bates
Canada	Ken Allison	Frank Lewis
Croatia	Sanja Spoljaric-Markovic	Ivan Djurkic
Cyprus	Petros Xystouris	Panayiota Sofocleous-Orphanidou
Denmark	Dorit Andersen	Mariann Lindemose
Denmark	Anna Lise Holleufer	Inger Hedegaard Madsen
Germany	Anna-Luise von Lieres	Enno Janssen
Hungary	Klara Folfoldi	Erika Szegedi
India	Rajendra Kumar	Satya Pal Sharma
India	Deepak Mullick	Ram V. Kaundinya
Japan	Keiji Terazawa	Masatoshi Sato
Slovakia	Anna Vitariusova	Monika Holubicova
South Africa	Chantal Areense	Pamela Strauss

### 1.3. Membership services

As part of the membership service, all ISTA members receive a free copy of the ISTA Rules (in case of new members for this year) or the Rules Amendments, a free CD subscription to SST, as well as a free copy of all newly published rules, handbooks and proceedings of the business year concerned.

In the year 2006 these were:

- **International Rules for Seed Testing, Edition 2006 (Amendments)**
- **Annexe to Chapter 7, Seed Health Testing, Edition 2006 (Amendments)**
- **Seed Science and Technology (SST) Volume 34/2006, Number 1, 2 and 3 on CD**
- **Activity Report 2005 of the ISTA Committees**
- **Seed Testing International (ISTA News Bulletin) April 2006 issue / Number 131**
- **Seed Testing International (ISTA News Bulletin) October 2006 issue / Number 132**
- **ISTA Constitution 2006**
- **Minutes of the ISTA Ordinary Meeting 2006**

## **2. ISTA Rules**

### **2.1. Report of the Rules Committee**

The Rules Committee is composed of the Chairpersons of all ISTA Committees including the Editorial Board plus ISTA's Honorary President.

In the time period 2004 - 2007 (since the Ordinary Meeting 2004) this is:

Chair:	Steve Jones		United Kingdom
Vice-chair:	John Hampton		New Zealand
Members:	Anne Bülow-Olsen	(EDI)	Denmark
	Valerie Cockerell	(SHC)	United Kingdom
	Ronald Don	(GER)	United Kingdom
	Sylvain Grégoire	(STA)	France
	Rainer Knoblauch	(VAR)	Germany
	Stefanie Krämer	(TEZ)	Germany
	Michael Kruse	(BSC)	Germany
	Norbert Leist	(GMO TF)	Germany
	Maria-Rosaria Mannino	(PUR)	France
	Deborah Meyer (until June 2006)	(AOSA)	United States
	Cindy Finneseth (from June 2006)	(AOSA)	United States
	Günter Müller	(PTC)	Germany
	David J. Mycock	(STO)	South Africa
	Harry Nijënstein	(MOI)	Netherlands
	Alison A. Powell	(VIG)	United Kingdom
	Zdenka Procházková	(FTS)	Czech Republic
	Zita Ripka	(FSC)	Hungary
	John H. Wiersema	(NOM)	United States
	Attilio Lovato		Italy

As part of harmonisation, the ISTA Rules Chair is an ex-officio member of the AOSA Rules Committee.

### **Activities**

The Rules Chair has received a number of enquiries on a range of issues relating to interpretation of the ISTA Rules. These queries are very useful and can often lead to new rules proposals to help improve to clarity of the Rules.

### **Amalgamation and Rules Amendments 2007**

The programme of amalgamation of Rules and Annexes proceeded with a second package of editorially merged and revised Chapters in 2006. At the ISTA Ordinary Meeting 2006 in Zurich, Switzerland, the membership voted through the revised version of Chapter 6: Biochemical Test for Viability and Chapter 15: Seed Vigour Testing, being effective from January 1<sup>st</sup>, 2007.

Table 10. summarises the Rules Changes that were successfully voted through at the ISTA Ordinary Meeting 2006:

**Table 10. Voted-in Rules Changes 2006**

Page number	Changes	Effective from	Notes
Cover, inner cover, preface	Dates and text.	2007	Amended
i-ix	Content list of Chapter 2, Annexe to Chapter 5, Chapter 6, Chapter 7, and Chapter 15 amended. Content list of Annexe to Chapter 6 and 15 deleted. Text flow.	2007	Amended
2-11	Editorial correction: Reference in 2.5.4.3 changed from 2.5.1.4.1 to 2.5.1.	2007	Amended
2-12	None.	2006	Replaced
2-13	None.	2006	Replaced
2-14	New entry for <i>Avena nuda</i> .	2007	Amended
2-15	New entry for <i>Crambe abyssinica</i> .	2007	Amended
2-16	None.	2006	Replaced
2-17	Species name <i>xFestulolium braunii</i> (K. Richt) A. Camus changed to <i>xFestulolium</i> spp. Asch. & Graebn.	2007	Amended
2-18	None.	2006	Replaced
2-21	None.	2006	Replaced
2-22	New entry for <i>Triticum dicoccum</i> .	2007	Amended
2-41	Editorial correction: Table 2B. Purity analysis changed from 2 000 to 2 500.	2007	Amended
2-42	None.	2006	Replaced
3-1	Deletion of Pinaceae and Taxaceae in paragraph 3.2.1.	2007	Amended
3-2	None.	2006	Replaced
3-3	Deletion of Pinaceae and Taxaceae in paragraph 3.2.3. Editorial correction: References in 3.5.1 changed from 2.7 to 2.5.2 and from 2.6 to 2.5.1.	2007	Amended
3-4	None.	2003	Replaced
3A-3	Change of PSD from 1 to 4 for <i>Cannabis</i> . Change of PSD from 4 to 10 for <i>Consolida</i> .	2007	Amended
3A-4	New entry for <i>Crambe</i> .	2007	Amended
3A-9	Change of PSD from 50 to 49 for <i>Sequiadendron</i> .	2007	Amended
3A-10	Change of PSD from 10 to 50 for <i>Taxus</i> . New entry for <i>Triticum dicoccum</i> .	2007	Amended
3A-11	None.	2006	Replaced
3A-12	Change of PSD 10: ' <i>Taxaceae</i> ' deleted.	2007	Amended
4-1 to 4-4	Text added to paragraph 4.7. Tolerance tables 4.1 and 4.2 of Annexe to Chapter 16: Tolerances included.	2007	Amended
5A-23	None.	2004	Replaced
5A-24	New entry for <i>Avena nuda</i> .	2007	Amended



Page number	Changes	Effective from	Notes
	Editorial correction: GA <sub>3</sub> inserted for <i>Avena sativa</i> .		
5A-25	New entry for <i>Crambe abyssinica</i> .	2007	Amended
5A-26	Species name <i>xFestulolium braunii</i> changed to <i>xFestulolium</i> spp. KNO <sub>3</sub> added for breaking dormancy in <i>Hordeum vulgare</i> .	2007	Amended
5A-29	None.	2003	Replaced
5A-30	New entry for <i>Triticum dicoccum</i> .	2007	Amended
5A-33	Amended entries for <i>Betula pendula</i> and <i>B. pubescens</i> .	2007	Amended
5A-34	None.	2005	Replaced
6-1 to 6-46	Rules and annexe of Chapter 6: Tetrazolium Test amalgamated. Tolerance tables 6.1 to 6.2 of Annexe to Chapter 16: Tolerances included.	2007	Amended
7-1 to 7-4	Text of rules and annexe are amalgamated. Methods stay in a separate binder.	2007	Amended
7-019-1	New published date.	2007	Amended
7-019-2	Addition to paragraph Revision History.	2007	Amended
7-019-3	Correction and text changes to paragraph Treated Seed.	2007	Amended
7-019-4	None.	2005	Replaced
7-021-1 to 7-021-16	New method '7-021 Detection of <i>Xanthomonas</i> ' included.	2007	Amended
8-3	None	2006	Replaced
8-4	Editorial correction: Reference in 8.5.4 changed from 8.8.2 to 8.9.	2007	Amended
8-15	Editorial correction: Reference in 8.8.4.3.2 changed from 8.8.4.3.1.1 to 8.8.4.3.1. 75 ml changed to 75 µl.	2007	Amended
8-16	80 ml changed to 80 µl. 15 ml changed to 15 µl.	2007	Amended
8-17	None.	2006	Replaced
8-18 to 8-19	Inclusion of distilled water as an optional extraction buffer.	2007	Amended
8-20	Inclusion of an optional gel solution. Improvements and additions to the text of 8.8.5.3.2, 8.8.5.3.3 and 8.8.5.3.4.	2007	Amended
8-21	Editorial correction: References in 8.8.5.4.2 and 8.8.5.4.3 changed from 8.8.5 to 8.8.5.5. Text flow from previous page.	2007	Amended
8-22	Editorial correction: Paragraph numbering changed from 8.5.5 changed from 8.5.5 to 8.8.5.5.	2007	Amended
8-27	Addition to the text of 8.8.7.3.2.	2007	Amended
8-28	Inclusion of optional gel solution. Improvements and additions to the text of 8.8.7.3.3.	2007	Amended
15-1 to 15-15	Rules and annexe of Chapter 15: Seed Vigour Testing amalgamated. Tolerance tables 15.1 to 15.6 of Annexe to Chapter 16: Tolerances included.	2007	Amended
17-3	Editorial correction: References in 17.4.1 changed from 2.4 to 2.5.4 and from 2.6 to 2.5.1.	2007	Amended



Page number	Changes	Effective from	Notes
17-4	None.	2003	Replaced
17-5	Editorial correction: Reference in 17.5.1 changed from 2.6.7 to 2.5.1.6.	2007	Amended
17-6	None.	2003	Replaced

For a history of amendments since the 2003 Edition of the Rules see the annual prefaces posted on the ISTA Website.

### Translation

Under the supervision of Axel Goeritz, a team of ISTA Members from Germany translated the 2006 Edition of the *International Rules for Seed Testing* into German. The translation and its annual amendments are available as 'Internationale Vorschriften für die Prüfung von Saatgut' from the ISTA Secretariat.

### Future of Rules Amalgamation

It was also agreed at the Ordinary Meeting 2005 to merge and review all Rules Chapters by 2008. The aim is to merge the Rules and Annexes to avoid duplication and improve clarity. It is also an opportunity to adopt a generic style for the chapters as well as to check, review and improve the text.

Each Chapter will have:

- Object
- Definitions
- General principles
- Apparatus (Equipment)
- Procedures (including retesting)
- Calculation and expression of results

Followed by any:

- Tables, maintaining current numbers, e.g. Table 2A, 5A
- Detailed methods, e.g. 7-001a, 7-001b, 8.6.A.1, 8.6.A.2
- Tolerance tables

A scrutiny team of ex-ISTA Executive Members (Doug Ashton and Simon Cooper) is being used to verify when 'editorial only' changes have been made that do not require a vote at the ordinary meetings. Any major changes, amendments, alterations will still require a voting proposal.

**Table 11. Proposed timetable and summary of changes**

OLD Chapter	Actions	Committee responsible for progress	NEW Chapter	Target voting meeting
-	-	Rules & Executive	Introduction and methods for Rules Changes	2008
1: Introduction	Editorial and revision, separate out and no longer a Chapter	Rules & Accreditation		2008
2: Sampling	Editorial and revision	Sampling	2: Sampling	Completed 2006
3: Purity	Editorial and revision	Purity	3: Purity	2007
4: Other Seeds by Number	No changes Paper colour only	Rules	4: Other Seeds by Number	Completed 2006
5: Germination	Editorial and revision	Germination	5: Germination	2007
6: Tetrazolium	Editorial and revision	Tetrazolium	6: Tetrazolium	Completed 2006 (except table 6A part 2, which will be voted on in 2007)
7: Seed Health	Editorial only	Seed Health	7: Seed Health	Completed 2006
9: Moisture Content	Editorial and revision	Moisture	9: Moisture Content	2007
10: Weight Determination	Editorial only	Rules	10: Weight Determination	2007
11: Coated seed	Revision and split between Chapters 2, 3, 4 & 5	Bulking and Sampling, Purity and Germination	11: Coated Seed	2007
12: Excised embryo	Editorial only	Forest Trees and Shrubs	12: Excised embryo	2007
13: Weighed replicate	Editorial only	Germination	13: Weighed replicate	2007
14: X-ray	No changes Paper colour only	Rules No changes	14: X-ray	2007
15: Seed vigour	Editorial only	Vigour	15: Seed vigour	Completed 2006
16: Tolerances	Editorial only	Rules	16: Tolerances	2008
17: Certificates	Editorial and revision Move to Chapter 1.	Rules	1: Certificates	2007 and 2008
Appendix A: Size grading	Make into Chapter 17. Editorial only	Rules	17: Size grading	2008
Appendix B: Bulk containers	Make Chapter 18. Editorial only	Rules	18: Bulk containers	2008

## 2.2. Sales of the ISTA Rules

187 sets of the *International Rules for Seed Testing, Edition 2006* and 232 copies of the ISTA Rules Amendments 2006 were sold including the copies of the German translations.

Table 12. gives an overview of the sales of the ISTA Rules Edition 2004 – 2006.

**Table 12. Sold ISTA Rules (sets and amendments) for the year 2004 – 2006.**

<b>Edition</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>
<b>ISTA Rules Sets</b>	145	149	161
<b>ISTA Rules Sets (German)</b>	-	43	26
<b>ISTA Rules Amendments</b>	204	221	203
<b>ISTA Rules Amendments (German)</b>	-	-	29

## 3. ISTA Accreditation Programme

### 3.1. Report of the Proficiency Test Committee

The ISTA Proficiency Test is organised by the ISTA Proficiency Test Committee and the Accreditation Department of the ISTA Secretariat.

#### **Committee Membership List**

Chair:	Günter Müller	Germany
Vice-chair:	Didier Demilly	France
Members:	Caroline Cadger	United Kingdom
	Sharon Davidson	United States
	Ronald Don	United Kingdom
	Tim Gutormson	United States
	Mari Jürmann	Estonia
	Joël Léchappé	France
	Pamela Strauss	South Africa
	Rita Zecchinelli	Italy

#### **Proficiency Test Programme Plan**

In 2006, samples of three test rounds were dispatched to an average number of 120 laboratories according to in the 2004-2007 Programme Plan.

<u>Dispatch date</u>	<u>Species</u>	<u>Test type</u>	<u>Deadline for reporting results</u>
February 01, 2006	<i>Sorghum bicolor</i>	P, OSD, G, OIC	May 2 <sup>nd</sup> , 2006
June 06, 2006	<i>Beta vulgaris</i>	P, OSD, G	September 1 <sup>st</sup> , 2006
October 2006	<i>Phaseolus vulgaris</i>	G	January 15 <sup>th</sup> , 2007

The ISTA Seed Health Committee initiated the preparation of a PT on seed health. The host pathogen combination selected will be *Botrytis cinerea* on *Helianthus annuus* (ISTA Rules method # 7-003) and sample dispatch shall be in 2007.

### Reporting of test results

In 2006, the following test reports were sent to the participants:

PT round	Test type	Date	Status of test report
03-1 <i>Trifolium incarnatum</i>	OSD	11.05.2006	Final
03-3 <i>Lycopersicon esculentum</i>	OSD	11.05.2006	Final
04-1 <i>Brassica napus</i>	OSD	11.05.2006	Final
04-3 <i>Phleum pratense</i>	OSD	11.05.2006	Final
05-2 <i>Secale cereale</i>	GER, OSD, MOI	11.05.2006	Final
05-3 <i>Capsicum annum</i>	GER	NA	Withdrawn from evaluation
05-3 <i>Pisum sativum</i>	VIG	19.07.2006	Provisional
05-3 <i>Pisum sativum</i>	VIG	13.09.2006	Final
06-1 <i>Sorghum bicolor</i>	GER, OSD	19.07.2006	Provisional
06-1 <i>Sorghum bicolor</i>	GER, OSD, OIC	13.09.2006	Final
06-2 <i>Beta vulgaris</i>	GER, OSD	29.11.2006	Provisional

GER = Germination, OSD = Other Seed Determination, MOI = Moisture Determination, VIG = Vigour, OIC = Reporting on an ISTA Certificate

In 2006, the second version of the document “PT-G-01-01-ISTA Proficiency Test Programme” was approved and published. After extensive discussions, the PTC proposed to alter the in-round rating systems for tests that are evaluated based on Z-Scores and for other seed determination. Changes to the in-round rating system based on Z-Scores were already approved and implemented in 2005 whereas the in-round rating system for other seed determination was approved by the ECOM in 2006. This in-round rating system takes into account that some species are more difficult to retrieve and identify than others. Results of other seed determination of past test rounds were reported to the participants in May.

For the statistical analysis of purity results advice from the Statistics Committee was sought and a programme for analysis of results was established. This programme’s code is under review for accuracy and appropriateness. Results will be reported to the participants as soon as it is approved.

In addition to the pictures of other seeds included in the samples, the Secretariat started publishing pictures of typical seedlings, kindly provided by the seed testing laboratory of Scotland. The pictures shall help laboratories to identify areas where they need improvement.

Following feedback from participants, the report sheets for other seed determination were revised in order to enhance clarity.

### Rating of laboratory performance

In the April issue of *Seed Testing International* the PTC published results of the test rounds since the introduction of the new rating system. The results of this assessment highlight the fact that accredited laboratories perform better than non-accredited laboratories. After evaluation of test round 06-2, *Beta vulgaris*, two accredited laboratories scored an overall BMP and a recommendation regarding the terms of conditions regarding a potential suspension has been forwarded to the ISTA Executive Committee for decision. The laboratories will be required to take action and obtain satisfactory performance in subsequent test rounds.

Since the introduction of the new rating system eleven germination test rounds and seven test rounds which included other seed determination have been completed and results thereof reported to the participants. A total number of 78 laboratories received an overall performance rating for germination and 72 laboratories received an overall rating for other seed determination.

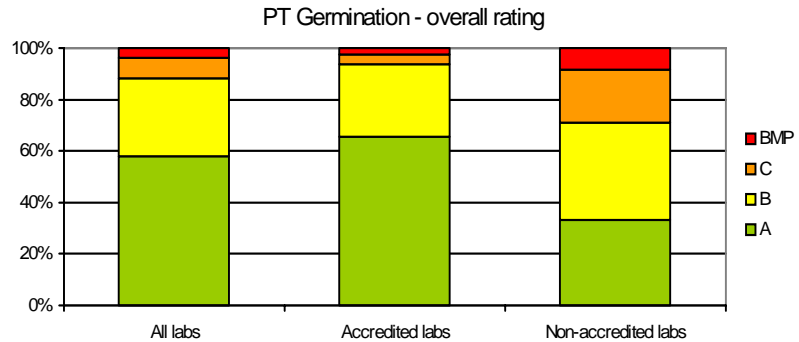


Figure 1: Comparison of overall PT performance in germination.

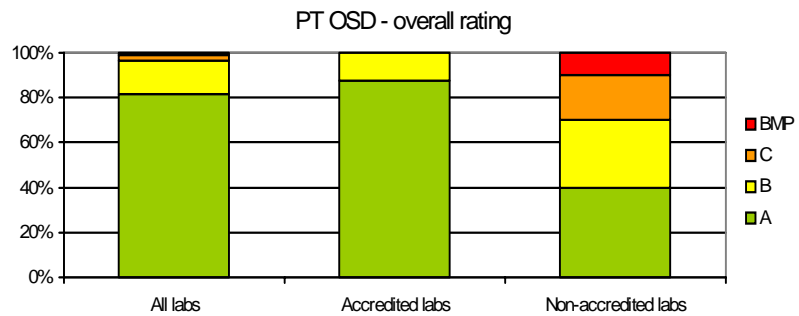


Figure 2: Comparison of overall PT performance in other seed determination.

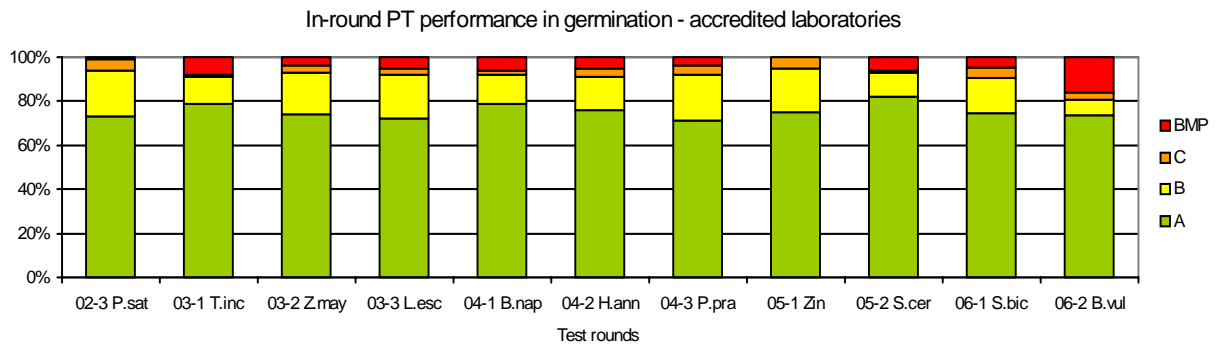


Figure 3: PT performance in germination per test round – accredited laboratories

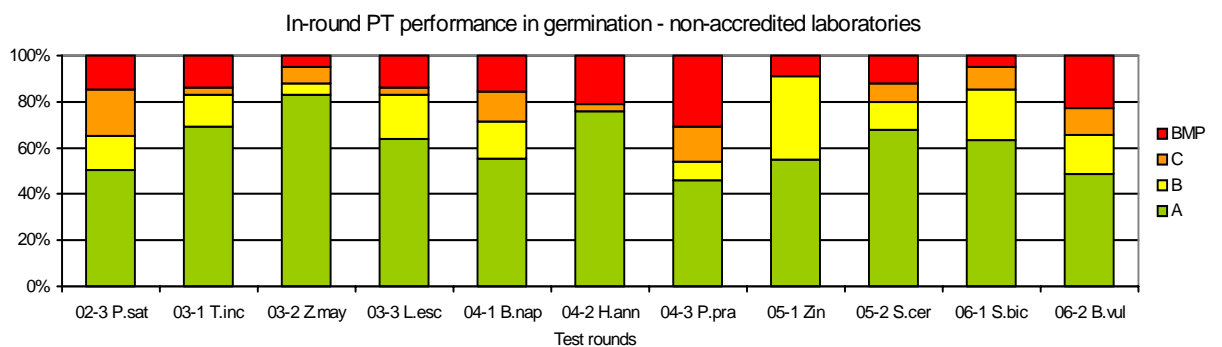


Figure 4: PT performance in germination per test round – non-accredited laboratories

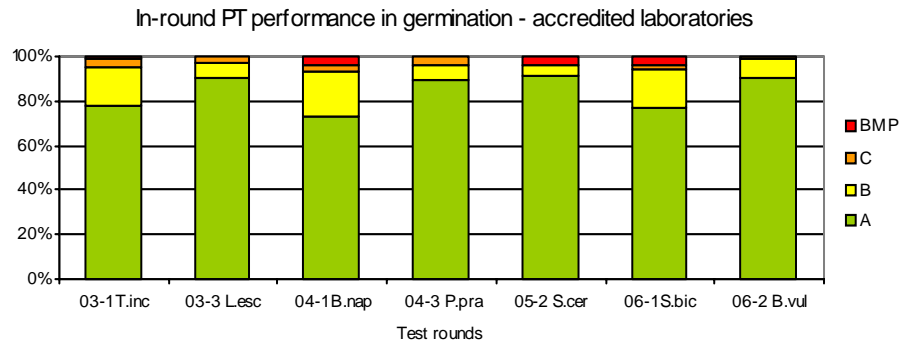


Figure 5: PT performance in other seed determination per test round – accredited laboratories

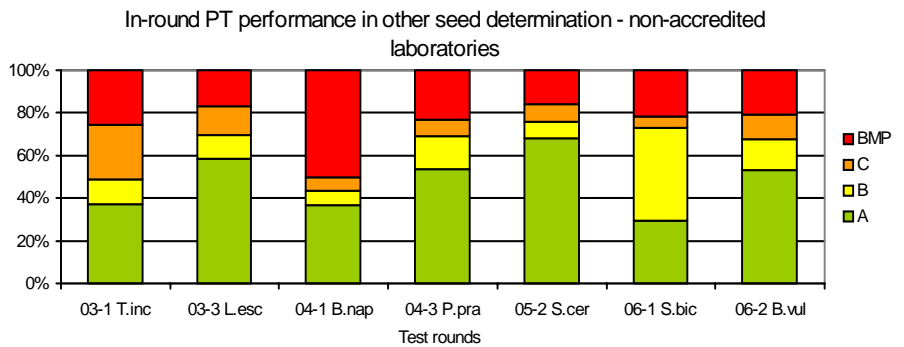


Figure 6: PT performance in other seed determination per test round – non-accredited laboratories

### 3.2. Report of the Accreditation Department

In 2006, 35 accreditation audit visits were performed, among these 5 were initiation audits. Two laboratories decided not to renew their accreditation.

#### Accreditation administration

In pursuit of aligning the accreditation department’s work with international conformity assessment practice, documentation of existing procedures and implemented policies was further strengthened. Existing documents were reviewed and updated, and new documents approved and published.

The collated feedback from the submitted feedback forms of accredited laboratories did not reveal that they had any serious issues or concerns. In general, the feedback is very positive.

The ISTA document ‘Principles and Conditions for Laboratory Accreditation under the Performance Based Approach’ became effective in February 2006. From that time, laboratories can become accredited for testing for the presence or absence of specified traits. Until the end of 2006, seven laboratories were audited for performance approved methods and four of them have already complied with the requirements and were accredited. A working group established to discuss issues that arose from the first audits suggested amendments to the PBA documents in order to clarify open questions. The revisions were approved by the ISTA Executive Committee in November 2006.

Like the years before, the ISTA auditors had a meeting during the ISTA Ordinary Meeting. The event was well attended and a summary meeting report was circulated.



A four day training course on Quality Management was conducted by the ISTA system auditors at the ISTA member laboratory in Switzerland. The training course was well attended and feedback from the participants was positive.

The Accreditation Department has played an advisory role in the revision of the ISTA Rules, Chapter 5 and 17 and the revision of the ISTA Method Validation Programme document.

### **Complete list of ISTA Accreditation Documents, version #., year of approval/ latest revision**

*ISTA Accreditation Standard*, 4.0, 2005  
*Acc-G-01-ISTA Accreditation Guidelines*, 2.1, 2005  
*Acc-G-02-Explanatory Note ISTA Certificates*, 1.1, 2004  
*Acc-G-03-Q-Documentation Guide*, 1.1, 2003  
*Acc-G-05-How to Respond to Audit Findings*, 1.0, 2005  
*Acc-D-01-Termination-Suspension-Withdrawal*, 2.1, 2006  
*Acc-D-02-Use of ISTA Logo*, 1.0, 2003  
*Acc-D-03-Appeals and Complaints Procedure*, 1.0, 2005  
*Acc-D-04-Accreditation under the PBA*, 2.0, 2006  
*Acc-D-05-Performance Data Evaluation\_1*, 2.0, 2006  
*Acc-D-05-Performance Data Evaluation\_2*, 1.0, 2006  
*Acc-D-06-Multiple-site Laboratory Accreditation*, 1.0, 2003  
*Acc-F-09-Application Form for Accreditation*, 3.1, 2004  
*PT-G-01-ISTA Proficiency Test Programme*, 2.0rev., 2006

### **Accreditation Figures**

#### Audits in 2006

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First audit	BR-BRAZIL	BRML08
	CA-CANADA	CAML10
	IN-INDIA	INML09
	IN-INDIA	INML12
	VN-VIETNAM	VNDL01

Number of audits: 5

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Second audit	DK-DENMARK	DKML06
		DKML07
	IN-INDIA	INML04
	IN-INDIA	INML05
	US-UNITED STATES	USML06

Number of audits: 5

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Third audit	AR-ARGENTINA	ARDL01
	AT-AUSTRIA	ATDL03
		ATML04
	BE-BELGIUM	BEDL02
	CZ-CZECH REPUBLIC	CZDL03
	DE-GERMANY	DEDL07
		DEDL03
		DEDL06
		DEDL09
	DK-DENMARK	DKDL01
	EE-ESTONIA	EEDL01
	FI-FINLAND	FIDL01
	GB-UNITED KINGDOM	GBDL01
	IT-ITALY	ITDL01
		ITDL03
	LU-LUXEMBOURG	LUDL01
	LV-LATVIA	LVDL01
	PL-POLAND	PLDL05
		PLDL07
	SK-SLOVAKIA	SKDL01
	US-UNITED STATES	USML05
	YU-SERBIA	YUDL01
		YUDL02
		YUDL03

Number of audits: 24

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Fourth audit	DE-GERMANY	DEDL18
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Number of audits: 1



## Complete list of accredited laboratories in 2006

AR-ARGENTINA	ARDL01	IN-INDIA	INML09
AT-AUSTRIA	ATDL03		INML12
	ATML04	IT-ITALY	ITDL01
AU-AUSTRALIA	AUDL01		ITDL03
	AUDL02		ITML06
	AUDL06	JP-JAPAN	JPDL01
	AUDL07		JPDL03
	AUDL09		JPML05
BE-BELGIUM	BEDL02		JPML06
BO-BOLIVIA	BODL01	KE-KENYA	KEDL01
CA-CANADA	CADL04	KG-KYRGYZSTAN	KGDL01
	CADL08	KR-SOUTH KOREA	KRDL01
CH-SWITZERLAND	CHDL01	LT-LITHUANIA	LTDL01
CL-CHILE	CLDL02	LU-LUXEMBOURG	LUDL01
CZ-CZECH REPUBLIC	CZDL02	LV-LATVIA	LVDL01
	CZDL03	MW-MALAWI	MWDL01
DE-GERMANY	DEDL03	NL-NETHERLANDS	NLDL02
	DEDL04		NLDL03
	DEDL05		NLML04
	DEDL06		NLML05
	DEDL07	NO-NORWAY	NODL01
	DEDL09	NZ-NEW ZEALAND	NZDL01
	DEDL10		NZDL02
	DEDL13		NZML03
	DEDL15		NZDL04
	DEDL16	PL-POLAND	PLDL04
	DEDL17		PLDL05
	DEDL18		PLDL07
DK-DENMARK	DKDL01	PT-PORTUGAL	PTDL01
	DKML02	RO-ROMANIA	RODL02
	DKML03		RODL05
	DKML04	SE-SWEDEN	SEDL02
	DKML05		SEDL07
	DKML06	SI-SLOVENIA	SIDL01
	DKML07		SIML04
EE-ESTONIA	EEDL01	SK-SLOVAKIA	SKDL01
EG-EGYPT	EGDL01		SKDL02
ES-SPAIN	ESDL01	TR-TURKEY	TRDL01
FI-FINLAND	FIDL01	TW-TAIWAN*	TWDL01
FR-FRANCE	FRDL02	US-UNITED STATES	USDL01
GB-UNITED KINGDOM	GBDL01		USDL03
	GBDL04		USML05
GR-GREECE	GRDL01		USML06
HR-CROATIA	HRDL03	UY-URUGUAY	UYDL02
HU-HUNGARY	HUDL01	VN-VIETNAM	VNDL01
IE-IRELAND	IEDL01	YU-SERBIA	YUDL01
IL-ISRAEL	ILDL01		YUDL02
IN-INDIA	INML04		YUDL03
	INML05	ZA-SOUTH AFRICA	ZADL01
	INML06	ZM-ZAMBIA	ZMDL01
	INML07	ZW-ZIMBABWE	ZWDL01

Total number of accredited labs: 102

\* Abbreviation for 'Separate Customs Territory of Taiwan, Penghu, Kinmen and Matsu'

Cancellations of accreditation by the end of 2006

DK-Denmark	DKML02
PL-Poland	PLDL04

Total number of	2002	2003	2004	2005	2006
Accredited laboratories	83	92	91	95	102
First accreditations	9	10	4	6	3
Cancellations	0	1	1	1	2
Suspensions*	1	-	5	-	1
Re-instatements of accreditation	0	1	1	3	0
Withdrawal of accreditation	1	0	0	1	0
New applications	8	6	2	8	2

\* does not include partial suspension due to poor PT performance

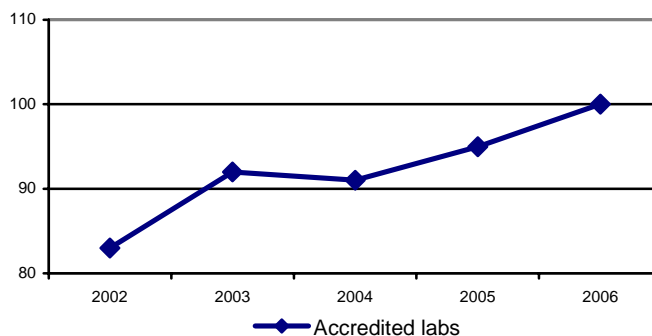


Figure 7: Number of accredited laboratories from 2002 until 2006

Number of countries with a minimum of one ISTA accredited laboratory: 50

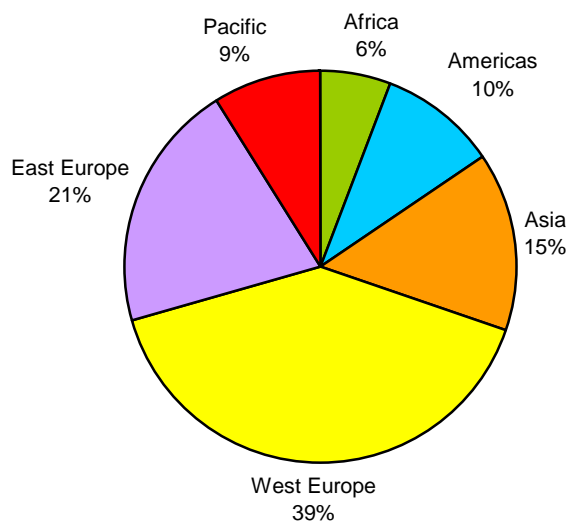


Figure 8: Regional distribution of the 102 ISTA accredited laboratories (Up to December 31<sup>st</sup>, 2006)

### 3.3. Sales of ISTA Certificates

The number of ISTA Certificates increased again in 2006 by 45% compared to the previous year. A total number of 116,046 was sold by the end of the year. The number of certificates sold in 2006 did not quite reach the level of 2000 and 2004 but increased considerably compared to the years 2003 and 2005.

Type of certificate	2000	2001	2002	2003	2004	2005	2006
Orange Certificates	129,980	98,100	95,700	81,950	123,880	70,300	106,176
Green Certificates	1,500	1,100	1,620	1,500	600	6,550	4,780
Blue Certificates	3,000	3,700	6,070	6,950	6,060	2,412	5,090
Total # of Certificates	134,480	102,900	103,390	90,400	130,540	79,662	116,046

## 4. ISTA Publications and Products

### 4.1. ISTA Handbooks and Proceedings

#### New Publications

In 2006, the *ISTA Handbook on Flower Seed Testing, 1<sup>st</sup> Edition, 2006* and *Amendments to ISTA Handbook on Seedling Evaluation, 3<sup>rd</sup> Edition, 2003* were published. The *Amendment and ISTA Handbook on Seedling Evaluation, 3<sup>rd</sup> Edition, 2003* were published as *ISTA Handbook on Seedling Evaluation, 3<sup>rd</sup> Edition, 2006*.

#### Sales figures

In the year 2006 the total sales of publications was 375 publications excluding copies of the International Rules for Seed Testing, their amendments and subscriptions for Seed Science and Technology.

Table 13. gives an overview on the total sales figures of ISTA Publications (handbooks, proceedings and working sheets) for the years 2004, 2005 and 2006. Table 14. gives an overview on the sales figures of the newly published handbooks in the ring binder format.

**Table 13. Total sales of ISTA publications for the years 2004, 2005 and 2006**

	2004	2005	2006
Total sales of publications	621	366	375

**Table 14. Sales figures of the newly published handbooks in the ring binder format**

	2004	2005	2006
Handbook on Seed sampling (2 <sup>nd</sup> edition, 2004)	63	48	70
Handbook on Seedling Evaluation (2003+2006)	133	85	92
ISTA Working Sheets on Tetrazolium Testing Vol. I (2003)	75	55	16
ISTA Working Sheets on Tetrazolium Testing Vol. II (2003)	46	16	9

## 4.2. Calibration Samples

The Secretariat offered calibration samples of the grass species *Dactylis glomerata* (3.0 g) and *Poa pratensis* (1.0 g) for the General Seed Blowers.

In the year 2006 the ISTA Secretariat sold:

8 calibration samples of *Dactylis glomerata* and

7 calibration samples of *Poa pratensis*

## 5. ISTA Training and Education Programmes

### 5.1 ISTA Workshops overview

In 2006, six workshops, five training courses and two seminars were held on different seed testing subjects. Table 15. gives an overview on the workshops, training courses and seminars held in 2006.

**Table 15. ISTA Workshops held in the year 2006**

Country	ISTA Workshop
Turkey	8 <sup>th</sup> ISTA/FAO Workshop on Varietal Verification and GMO Detection
Ghana	ISTA/FAO Training Course on Seed Quality Testing
United States	ISTA Biotech Trait Detection Workshop
France	ISTA Vigour Testing Workshop
China	ISTA Seed Testing Technology Seminar
Switzerland	ISTA Purity Workshop
Switzerland	ISTA Quality Management Training Course
Kenya	ISTA Purity Workshop
Thailand	ISTA/APSA Training on Seed Health Testing
The Netherlands	11 <sup>th</sup> ISTA Training Course on Tetrazolium Testing (vegetable and agricultural seeds)
Germany	ISTA Workshop on Varietal and Hybrid Determination by IEF
Italy	ISTA Forest Tree and Shrub Seed Seminar
Indonesia	ISTA/FAO Training Course on Seed Quality Testing

## **6. Scientific Journal 'Seed Science and Technology'**

### **6.1. Report of the Editorial Board**

Chief Editor:	Anne Bülow-Olsen	Denmark	
Associate Editors:	Christophe Bailly	France	Physiological and biochemical aspects of seed germination, dormancy, ageing and development
	Mark A. Bennett	United States	Seed enhancements, vigour, vegetable seed production, and germination
	Charles Block	United States	Pathology, non-bacterial (also bacteria)
	Brigitte Hamann	Switzerland	Germination
	John G. Hampton	New Zealand	Vigour, tetrazolium, germination, quality seed production
	Michael Kruse	Germany	Statistics, modern methods, sampling
	Julio Marcos-Filho	Brazil	Seed vigour testing (grain crops and vegetables) maturation, priming and deterioration
	David Mycock	South Africa	Storage, cryopreservation, physiology and micropropagation
Until August 2006	Robert E. L. Naylor	United Kingdom	Tropical crops, biodiversity, crops and microbiology, pests and diseases
	Alison Powell	United Kingdom	Vigour and health
	Zdenka Procházková	Czech Republic	Forest seeds
	Moctar Sacande	United Kingdom	Tropical tree seed physiology, seed storage longevity, desiccation tolerance and seed conservation, biophysics of seed storage, tropical dry land species, silviculture of tropical trees
	Norm W. Schaad	United States	Plant health, bacteria
	Michael Sussman	United States	GMO and related methods

#### **Editorial figures**

Papers received 2006:	191
Papers accepted for publication 2006:	54
Papers rejected 2006:	96
Papers published in three issues in 2006:	29 + 28 + 25 = 82
Full papers in three issues in 2006:	19 + 24 + 25 = 68
Research Notes in three issues in 2006:	10 + 3 + 7 = 20 (+ 1 book review)
Pages published in three issues in 2006:	776 (incl. content lists etc.)
Average number of pages per paper in 2006:	9.2
Issues published:	34-1, 34-2 and 34-3

*Seed Science and Technology* (SST) has been published as printed books, on the web and on CD.

### Seed Science and Technology – Online Version

SST went online for the first time in June 2006. The downloading of single papers (pay per view) and the subscription of an SST online version is now available through the Ingenta website. Next to the current version SST volumes published since 2003 are accessible. The number of visitors viewing the SST table of contents and abstracts on the Ingenta website has increased significantly (see Figure 9.)

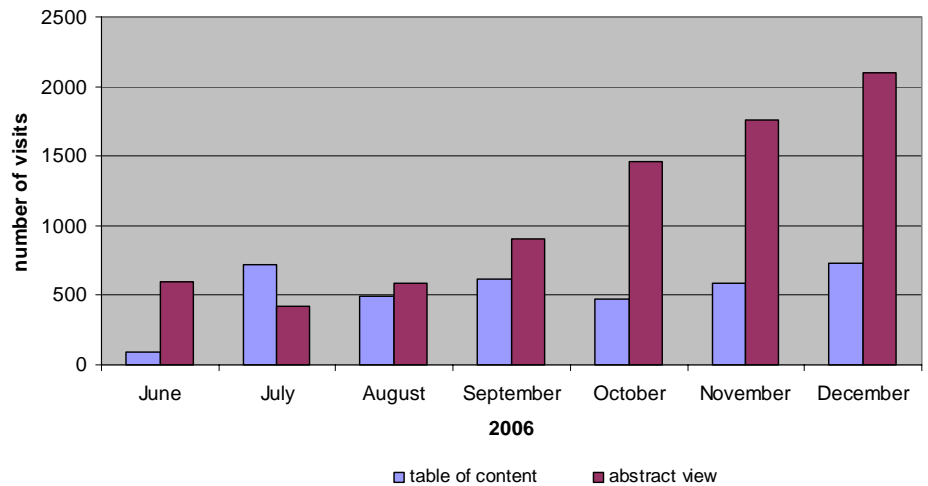


Figure 9: SST statistics of abstracts and table of content visits.

### 6.2. Sales of 'Seed Science and Technology'

In 2006, 400 printed copies and 270 CDs were produced of Volume 34 Nr. 1, 2 and 3 and dispatched as follows:

- 215 issues included in membership subscription
- 346 issues to additional subscribers worldwide.

## 7. Report of the ISTA Secretariat

### **7.1. Composition of Staff**

In the year 2006 the number of employees remained stable at 8.1 full time jobs compared to the year 2005.

The staff of the Secretariat (from January 1<sup>st</sup>, until December 31<sup>st</sup> 2006):

Secretary General:	Michael Muschick	fulltime
Senior Executive:	Patricia Raubo	fulltime
Head of Accreditation Department:	Martina Rösch	fulltime
Head of Technical Committee Administration:	Bettina Kahlert	part time
Marketing and Communications:	Michelle Jenni Nietlispach	
	(on maternity leave August to December)	
	Sharifah Toron (since August)	fulltime
System Auditor:	Gerhard Schuon	fulltime
Membership Administration:	Branislava Opra	fulltime
Secretary Accreditation:	Ana Maria Vazquez	part time
Publication Sales:	Agnes Hegedüs	part time

### **7.2. Information Distribution**

#### **Internal Administration System**

The Executive Committee has approved the installation of a completely new administration system for the ISTA Secretariat, which will increase the efficiency of the administration, handle a number of tasks automatically and merge the current three different databases into one combined database. The administration system is brought to a stage reflecting the current standard of electronic data administration.

Even though the change in the administration system was extremely time-consuming and labour intense, the implementation of the new system was done smoothly and successfully in December 2006.

#### **Website**

The ISTA Website has become one of the most important tools of ISTA to exchange information with its members and the seed testing industry in general. The statistics show that there was a continued increase in visitors and usage of the website, which confirms the importance of the online media. The website supports ISTA to be available 24 hours a day for its members around the globe.

Electronic ISTA Newsletters were sent out on a regular basis to inform subscribers of the latest highlights and announcements of ISTA.

The online bookstore showed again an increasing number of orders, which only confirms the importance of this service to ISTA members.

### **Seed Testing International**

The ISTA News Bulletin, 'Seed Testing International' continues to be a highly appreciated publication among members and subscribers. Due to the increasing number of subscribers, the printed issues had to be increased to 2500 copies per issue. It was again published twice a year, in April and December 2006, with many interesting articles relating to seed testing from all regions of the world. We would like to thank all authors for their contributions throughout the year with articles and reports, ensuring that the publications remains of high standard for all our readers.

### **Publications Catalogue**

The 2007 Publications Catalogue was prepared, published and distributed at the end of 2006. All new releases were added to the current list of publications.

All Publications can also be ordered through the online bookstore on the ISTA Website [www.seedtest.org](http://www.seedtest.org). A lot of documents and publications are available on the website for downloading free of charge.

### **Information documents**

As an outcome of the installation of the new ISTA membership categories, a new ISTA Membership Application form has been developed, to give clear and complete information to all interested persons about the ISTA membership categories available as well as the corresponding membership benefits and services that ISTA members are entitled to.

## **8. Finances of the Association**

For the year 2006 the ISTA finances were sound. As in the previous years, the accounts have been audited by BDO Visura in January 2007, which found them to be in order.

The total turnover of ISTA increased compared to the accounts for 2005, to a total of Swiss Francs CHF 2'076'587.72.

For most of the income positions, the account figures are in accordance with the budget. A special point that needs to be addressed is the sales of ISTA Certificates, which has increased clearly compared to the sales of the certificates in 2005. The ups and downs in the sales of the ISTA Certificates seem to follow no clearly identifiable rule and form the biggest uncertainty for the ISTA profit and loss account. The increase in the income through the ISTA audits has been foreseen due to the increase in the scheduled ISTA audits following the three year circle of re-accreditation. The increase in income from the Annual Meeting 2006 was created by the higher registration fees to cover the more expensive prices for the location of the ISTA Annual Meeting 2006 in Switzerland, compared to the less expensive prices paid for the ISTA Annual Meeting 2005 upon invitation of the government of Thailand.

Also for most of the account figures on the expenditure side the account figures fit with the budget figures. The installation of a completely new administration system as well as the renewal of the protection of the ISTA Logo on the international level, created clear higher costs to be summed up under the account office costs.

The overall profit for ISTA in the year 2006 of Swiss Francs CHF 18'964.87 is clearly higher compared to the budgeted figure, mainly due to the better sales of the ISTA Certificates.



The detailed overview of the different accounts on the following pages gives the concrete figures of the account positions for the year 2005, 2006 as well as the budget figures for 2007 (as approved by the Executive Committee) and the preliminary budget figures for the year 2008.

After the detailed overview you will find the report of our auditor BDO Visura.



Profit and Loss Account	Accounts	Accounts	Budget 2007	Preliminary
	2005	2006		Budget 2008
	CHF	CHF	CHF	CHF
<b>Income</b>				
<i>Subscriptions</i>				
Annual Membership Subscription	958'318.00	994'220.00	1'007'000	1'017'070
Extraordinary Income on Subscriptions	10'245.42	16'034.59	0	0
Extraordinary Losses on Subscriptions	-2'437.21	-579.86	0	0
Website	0	0	0	0
Ordinary Meetings	40'217.16	107'813.30	5'000	110'000
Technical Committees	14'580.00	25'705.00	19'000	19'000
Seed Testing International	4'669.95	1'176.50	2'000	2'000
	<b>1'025'593.32</b>	<b>1'144'369.53</b>	<b>1'033'000</b>	<b>1'148'070</b>
<i>Service Centres</i>				
ISTA Rules	65'636.98	75'019.94	62'500	62'500
Accreditation	260'000.00	350'000.00	420'000	290'000
Workshops	37'487.92	63'259.34	50'000	50'000
Seed Science and Technology	142'592.65	145'790.88	150'000	149'500
Technical Publications	63'880.75	64'550.13	54'000	54'000
Certificates	158'124.00	233'040.00	180'000	270'000
Interests, Profit and Loss on Exchanges	20'778.32	19'522.77	15'000	20'000
	<b>748'500.62</b>	<b>951'183.06</b>	<b>931'500</b>	<b>896'000</b>
	<b>1'774'093.94</b>	<b>2'095'552.59</b>	<b>1'964'500</b>	<b>2'044'070</b>
<b>Expenditure</b>				
<i>Direct Costs</i>				
Ordinary Meetings	38'823.24	101'007.04	0	100'000
Direct Costs Executive Committee	18'006.36	18'484.56	15'000	15'000
Direct Costs Technical Committees	13'472.02	28'537.13	20'000	40'000
Seed Testing International	41'921.87	42'510.65	30'000	30'000
	<b>112'223.49</b>	<b>190'539.38</b>	<b>65'000</b>	<b>185'000</b>
<i>Service Centres</i>				
ISTA Rules	29'147.21	37'808.72	40'000	40'000
Accreditation	400'481.15	458'227.20	460'000	440'000
Workshops	30'268.02	55'695.74	45'000	45'000
Seed Science and Technology	136'858.84	89'126.45	100'000	100'000
Technical Publications	13'216.52	42'639.98	40'000	30'000
Certificates	12'564.18	26'760.23	25'000	25'000
	<b>622'535.92</b>	<b>710'258.32</b>	<b>710'000</b>	<b>680'000</b>
<i>Operating Costs</i>				
Personnel Costs	757'856.45	781'506.24	780'000	860'000
Office Costs	238'585.72	348'115.65	340'000	260'000
Travel Costs (International Representation)	31'097.53	31'576.26	30'000	30'000
Marketing Costs	8'792.52	10'166.87	16'000	7'000
Website	2'442.53	4'425.00	5'000	20'000
	<b>1'038'774.75</b>	<b>1'175'790.02</b>	<b>1'171'000</b>	<b>1'177'000</b>
	<b>1'773'534.16</b>	<b>2'076'587.72</b>	<b>1'946'000</b>	<b>2'042'000</b>
<b>Result</b>	<b>559.78</b>	<b>18'964.87</b>	<b>18'500</b>	<b>2'070</b>



Balance Sheet as per December 31 <sup>st</sup>	2006	2005	2004
	CHF	CHF	CHF
<b>Assets</b>			
<b>Current Assets</b>			
Petty cash CHF	6'201.16	2'462.87	645.96
Postal account	28'841.05	33'061.21	60'279.84
Zürcher Kantonalbank, current account	52'855.35	153'573.45	101'653.20
Zürcher Kantonalbank, deposit account	37'768.10	49'310.55	174'055.05
Zürcher Kantonalbank, USD account	11'046.26	36'774.44	82'771.95
Zürcher Kantonalbank, CAD account	0	0	2'843.26
Zürcher Kantonalbank, EUR account	14'138.80	126'636.19	500.94
Zürcher Kantonalbank, short-term deposit account CHF	350'000.00	300'000.00	0
Zürcher Kantonalbank, short-term deposit account EUR	209'261.00	0	0
	<i>710'111.72</i>	<i>701'818.71</i>	<i>422'750.20</i>
<i>Debtors</i>			
Membership subscriptions, Certificates und publications	101'341.47	53'281.09	110'101.88
./. Allowance on doubtful accounts	-24'800.00	-9'800.00	-13'000.00
	<i>76'541.47</i>	<i>43'481.09</i>	<i>97'101.88</i>
Other accounts receivable	29'665.11	29'294.05	31'478.65
Withholding tax	5'070.49	4'025.19	1'980.00
Value added Tax	6'788.38	0.00	0.00
	<i>41'523.98</i>	<i>33'319.24</i>	<i>33'458.65</i>
Prepaid expenses	58'645.06	41'732.11	34'242.15
	<b>886'822.23</b>	<b>820'351.15</b>	<b>587'552.88</b>
<b>Noncurrent Assets</b>			
<i>Fixed Assets</i>			
Furniture, Computer	9'800.00	15'100.00	23'280.00
<i>Financial Assets</i>			
Securities	335'149.00	333'314.00	271'461.00
<i>Intangible Assets</i>			
ISTA Logo	20'000.00	0	0
	<b>364'949.00</b>	<b>348'414.00</b>	<b>294'741.00</b>
	<b>1'251'771.23</b>	<b>1'168'765.15</b>	<b>882'293.88</b>
<b>Liabilities</b>			
Accounts payable	74'331.93	160'839.42	31'834.39
Advance payments	284'765.93	206'727.13	49'875.95
Accrued expenses	138'139.03	65'629.13	55'573.85
Accrued liabilities	118'000.00	118'000.00	128'000.00
	<b>615'236.89</b>	<b>551'195.68</b>	<b>265'284.19</b>
<b>Retained Earnings</b>			
Surplus as of January 1 <sup>st</sup>	617'569.47	617'009.69	561'721.40
Result	18'964.87	559.78	55'288.29
Surplus as of December 31 <sup>st</sup>	<b>636'534.34</b>	<b>617'569.47</b>	<b>617'009.69</b>
	<b>1'251'771.23</b>	<b>1'168'765.15</b>	<b>882'293.88</b>



**BDO Visura**  
Audit & Assurance

8031 Zurich, Fabrikstrasse 50  
Phone: 044 444 35 55, Fax 044 444 35 35  
www.bdo.ch

**To the Ordinary Meeting of ISTA,  
International Seed Testing Association, Bassersdorf**

As statutory auditors, we have audited the accounting records and the financial statements (including Balance sheet, Profit and loss account and Explanatory notes) of the International Seed Testing Association (ISTA) for the year ended December 31, 2006.

These financial statements are the responsibility of the executive committee. Our responsibility is to express an opinion on these financial statements based on our audit. We confirm that we meet the legal requirements concerning professional qualification and independence.

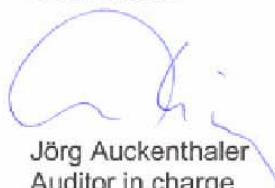
Our audit was conducted in accordance with Swiss auditing standards promulgated by the profession, which require that an audit be planned and performed to obtain reasonable assurance about whether the financial statements are free from material misstatement. We have examined on a test basis evidence supporting the amounts and disclosures in the financial statements. We have also assessed the accounting principles used, significant estimates made and the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

In our opinion, the accounting records and financial statements comply with Swiss law and the association's articles of incorporation.

We recommend that the financial statements submitted to you be approved.

Zurich, January 23, 2007

BDO Visura



Jörg Auckenthaler  
Auditor in charge  
Certified Public Accountant



Peter Stalder  
Certified Public Accountant



## C. REPORTS OF THE TECHNICAL COMMITTEES

You will find on the following pages the activity reports of the Technical Committees. The reports including the progress report for the time period from January to December 2006 as well as the Working Programme until 2007.



## WORKING PROGRAMMES, PROGRESS REPORTS AND MEMBERSHIP OF ISTA TECHNICAL COMMITTEES

### Working Programmes arranged in alphabetical order of Committee

BSC	BULKING AND SAMPLING COMMITTEE
FSC	FLOWER SEED COMMITTEE
FTS	FOREST TREE AND SHRUB SEED COMMITTEE
GER	GERMINATION COMMITTEE
MOI	MOISTURE COMMITTEE
NOM	NOMENCLATURE COMMITTEE
PUR	PURITY COMMITTEE
SHC	SEED HEALTH COMMITTEE
STA	STATISTICS COMMITTEE
STO	STORAGE COMMITTEE
TEZ	TETRAZOLIUM COMMITTEE
VAR	VARIETY COMMITTEE
VIG	VIGOUR COMMITTEE
GMO	GMO TASK FORCE

### Working Programmes arranged according to subjects

- A Rules Development**
  - Introduction of New Methods
  - Introduction of New Species
  - Introduction of Rules Changes
  
- B Publications**
  - Rules accompanying publications
  - Training publications on specific seed testing topics
  - Scientific information publications
  
- C Workshops and Seminars**
  - Training and education workshops
  - Seminars
  
- D Proficiency Tests**
  
- E Specific Projects**



**PART 1**

**PROGRESS REPORT AND WORKING PROGRAMME UPDATE**

**A Rules Development**

**Introduction of New Methods**

	TCOM	Method name/Subject	Proposed finalisation	Collaboration
1	BSC	Sampling of containers with a tube trier	2007	STA

**Introduction of Rules Changes**

	TCOM	Subject	Proposed finalisation	Collaboration
1	BSC	General revision of chapter 2 according to guidelines from RUL	finalised 2005	RUL
2	BSC	Increase of seed lot size for cereals from 25 to 30 t	finalised 2005	RUL
3	BSC	Deletions of recommended specifications for tools and reference to the ISTA Seed Sampling Handbook	finalised 2005	-
4	BSC	Updating and inclusion of a performance based procedure for the certification of automatic seed samplers into the ISTA Rules	2007	-

**A Publications**

**Rules accompanying publications**

	COM	Publication title	Proposed finalisation	Collaboration
1	BSC	Contributions to the "ISTA Handbook for sampling and testing of seed mixtures"	2006	PUR, STA

**Training publications on specific seed testing topics**

	COM	Publication title	Proposed finalisation	Collaboration
1	BSC	Proceedings of the Workshop on Seed Sampling	2007	-

**B Workshops and Seminars**

**Training and education workshops**

	COM	Workshop subject	Proposed Date	Region
1	BSC	Seed Sampling Workshop	Sept. 2007	The Netherlands

**E Special Projects**

	COM	Project name/subject	Proposed finalisation	Collaboration
1	BSC	Evaluation of uniformity of 30 t cereal seed lots	2007	STA

## PART 2

### COMMITTEE MEMBERSHIP LIST

Chair:	1	Michael Kruse	Germany
Vice-chair:	2	Max Soepboer	Netherlands
Members:	3	Helena Blomqvist-Ljung	Sweden
	4	Merete Buus	Denmark
	5	Didier Demilly	France
	6	Bernard Fabre	France
	7	Eddie Goldschagg	South Africa
	8	Gerry Hall	United Kingdom
	9	Alfred Odindo	Kenya
	10	Leena Pietilä	Finland
	11	Jane Taylor	United Kingdom
	12	Dot Vittrup Pedersen	Denmark

## PART 3

### PROJECT PROGRESS

**A** Project 1: General revision of chapter 2 according to guidelines from RUL

**B** Project leader: Kruse

**C** Summary of (intermediate/final) results and main progresses

The project is finalised: The new chapter 2 came into force in 2006 .

**A** Project 2: Increase of seed lot size for cereals from 25 to 30 t

**B** Project leader: Kruse

**C** Summary of (intermediate/final) results and main progresses

The project is finalised: The new lot sizes for cereals came into force in 2006 .

**A** Project 3: Deletions of recommended specifications for tools and reference to the ISTA Seed Sampling Handbook

**B** Project leader: Kruse

**C** Summary of (intermediate/final) results and main progresses

The project is finalised: The new text will come force in 2006 .

**A** Project 4: Updating and inclusion of a performance based procedure for the certification of automatic seed samplers into the ISTA Rules

**B** Project leader: Kruse

**C** Summary of (intermediate/final) results and main progresses

The project is not yet started but will be on the agenda for 2007.

**A** Project 5: Contributions to the "ISTA Handbook for sampling and testing of seed mixtures"

**B** Project leader: Kruse

**C** Summary of (intermediate/final) results and main progresses

A first contribution was made during the OM 2006. However, writing a chapter was not yet started.

**A** Project 6: Proceedings of the Workshop on Seed Sampling

**B** Project leader: Kruse

**C** Summary of (intermediate/final) results and main progresses

The project is not yet started since the Workshop will be held in 2007.

**A** Project 7: Seed Sampling Workshop

**B** Project leader: Soepboer

**C** Summary of (intermediate/final) results and main progresses

The project is not yet started since the Workshop will be held in 2007.

**A** Project 8: Evaluation of uniformity of 30 t cereal seed lots

**B** Project leader: Kruse

**C** Summary of (intermediate/final) results and main progresses

The project is not yet started since 30 t lot sizes came into force in 2006 only and will be used in the 2007 season for the first time in Europe.



**PART 1**

**PROGRESS REPORT AND WORKING PROGRAMME UPDATE**

**B Publications**

**Rules accompanying publications**

	COM	Publication title	Proposed finalisation	Collaboration
1	FSC	ISTA Handbook on Flower Seed Testing Issue of folder with the general chapters and 15 work sheets	2006	ISTA Secretariat
2	FSC	<i>Antirrhinum</i> -draft	2006	-
3	FSC	<i>Verbena</i> -draft	2006	-
4	FSC	<i>Celosia</i> -draft	2006	-
5	FSC	<i>Thunbergia</i> -draft	2006	-
6	FSC	<i>Salvia</i> -draft	2006	-
7	FSC	<i>Antirrhinum, Verbena, Celosia, Thunbergia, Salvia</i> – final version	2006	GER, TEZ, PUR, SHC - ISTA Secretariat

**Training publications on specific seed testing topics**

	COM	Publication title	Proposed finalisation	Collaboration
1	FSC	ISTA Flower Seed Testing Workshop Proceedings Summary	2007	-

**C Workshops and seminars**

**Training and education workshops**

	COM	Workshop subject	Proposed Date	Region
1	FSC	Flower Seed Testing	2007	Europe, Italy

**D Proficiency Tests**

	COM	Proficiency Test Subject	Proposed date	Collaboration
1	FSC	<i>Zinnia</i> -germination	2005	PTC, ISTA Secretariat

**E Special Projects**

	COM	Project name/ Subject	Proposed finalisation	Collaboration
1	FSC	Validation of wild flower species germination method	2006	GER
2	FSC	Seed Mixtures	2007	GER Chair

## PART 2

### COMMITTEE MEMBERSHIP LIST

Chair:	1	Zita Ripka	Hungary
Vice-chair:	2	Rita Zecchinelli	Italy
Members:	3	Lea Mazor	Israel
	4	Sharon K. Davidson	United States
	5	Sylvie Ducournau	France
	6	Linda Maile	United Kingdom
	7	Frikkie A. Marais	South Africa
	8	Miller B. McDonald	United States
	9	Aleta Meyr	United States
	10	Mirjana Milosevic	Serbia and Montenegro
	11	Petra Remeeus	Netherlands
	12	Wen-shi Wu	Taiwan
	13	David Tay	United States
<i>WG member</i>	14	Gyöngyi Ivanovics	Hungary
Left		DaNell R. Jamieson	United States

DaNell R. Jamieson from the US changed work in October and had to give up her membership in the committee.

## PART 3

### PROJECT PROGRESS

#### A Project 1: ISTA Handbook on Flower Seed Testing

#### B Project leader: Zita Ripka

#### C Summary of (intermediate/final) results and main progresses

The preparation of this project has gone on in the past years. We have already enough work sheets prepared and checked to start the issue of the Handbook. Presently we make with Bettina Kahlert the final editing of the draft work sheets of

*Ageratum, Aster, Bellis, Callistephus, Calendula, Centaurea, Coreopsis, Cosmos, Dahlia, Gaillardia, Gazania, Helichrysum, Rudbeckia, Tagetes, Zinnia* from Asteraceae

*Impatiens* from Balsaminaceae

*Dianthus* from Caryophyllaceae

*Cyclamen* from Primulaceae

*Petunia* from Solanaceae

*Viola* from Violaceae families,

And the new ones: *Antirrhinum, Celosia, Salvia, Thunbergia, Verbena* finalised in 2006.

The Handbook will be issued and available for the flower seed testing laboratories in 2006 with the detailed seed testing information of the above genera.

The work will not stop with the issue of this first work sheets. According to our working programme for the next years we will go on.



## PART 1

## PROGRESS REPORT AND WORKING PROGRAMME UPDATE

## A Rules Development

## Introduction of New Methods

	TCOM	Method name/Subject	Proposed finalisation	Collaboration
1	FTS	Tropical tree seed germination	2007	-
2	FTS	<i>Juniperus</i> germination	Finalised in 2006	-
3	FTS	Comparative tests of <i>Abies</i> germination	2008	-
4	FTS	Comparative tetrazolium tests of <i>Abies</i>	2007	TEZ

## Introduction of New Species

	COM	Species	Subject	Proposed finalisation	Collaboration
1	FTS	Tropical tree seed	-	2007	-

## Introduction of Rules Changes

	TCOM	Subject	Proposed finalisation	Collaboration
1	FTS	Revision of pure seed definitions (PSD)	2007	-
2	FTS	Harmonisation of Table 6 Tetrazolium tests with Table 2 Sampling	2007	TEZ

## B Publications

## Rules accompanying publications

	COM	Publication title	Proposed finalisation	Collaboration
1	FTS	ISTA Tree and Shrub Seed Handbook - revision	2007	EDI
2	FTS	Seedling Evaluation Handbook	2007	GER

## C Workshops and Seminars

## Training and education workshops

	COM	Workshop subject	Proposed Date	Region
1	FTS	Tree and Shrub Seed Tetrazolium Workshop	Finalised in June 2005	Europe/Germany
2	FTS	FTS Seminar	Finalised in September 2006	Europe / Italy

## D Proficiency Tests

	COM	Proficiency Test Subject	Proposed date	Collaboration
1	FTS	Tree and Shrub Seed Germination – 1 <sup>st</sup> round with 1 species	2007	PTC

## E Special Projects

	COM	Project name/subject	Proposed finalisation	Collaboration
1	FTS	Harmonisation of the ISTA and AOSA Rules	2007	-
2	FTS	Publication of Proceedings of FTS Workshop, Prague 2003	Finalised in 2005	-

## PART 2

### COMMITTEE MEMBERSHIP LIST

Chair:	1	Zdenka Prochazkova	Czech Republic
Vice-chair:	2	Hugh Pritchard	United Kingdom
Members:	3	D.G.W. Edwards	Canada
	4	Kari Fiedler	United States
	5	Elena Foffova	Slovakia
	6	Fabio Gorian	Italy
	7	Peter Gosling	United Kingdom
	8	Robert P. Karrfalt	United States
	9	Dave Kolotelo	Canada
	10	Stefanie Krämer	Germany
	11	Beti Piotta	Italy
	12	Heidi Røsok Bye	Norway
	13	Moctar Sacande	United Kingdom
	14	Dale Simpson	Canada
	15	Victor Vankus	United States

Proposed termination of FTS Membership due a long-term inactivity

Daniel Baskaran

Fatima C.M. Pina-Rodrigues

Malaysia

Brazil

## PART 3

### PROJECT PROGRESS

#### INTRODUCTION OF NEW METHODS/SPECIES

**A** Project 1: Tropical tree seed germination

**B** Project leader: Hugh Pritchard

**C** Summary of intermediate results and main progresses

No information from the leader yet.

**A** Project 2: *Juniperus* germination

**B** Project leader: Beti Piotta

**C** Summary of intermediate results and main progresses

The project is finalised:

Germination in *Juniperus* species is a quite complex issue about which very little is known, strong variation between species and within species has been assessed. The project aims at collecting information, mainly through abstracts, about germination in *Juniperus* species. Information includes related topics like seed dispersal, seed collection, dormancy, dormancy removal, nursery growing.

The project can be considered concluded.

All the abstracts retrieved till the beginning of 2006, 2500 circa, have been read and processed: 1010 were selected as considered the most suitable for our purposes. The selected abstracts, that cover a period between 1893 and 2006, were ordered by a) author/date and b) subject (i.e. *Juniperus*, *Juniperus australis*, ....., *Juniperus wallichiana*). Within any abstract keywords were included. The bibliography, in both versions, has been presented in rtf format as well as in htm format.

The abstracts have provided addresses of authors and institutes which have been listed in the way shown in the following example:

Title: Some physical and nutritional properties of *Juniperus drupacea* fruits.

Author: Akinci I.; Ozdemir F.; Topuz A.; Kabas O.; Canakci M.

Institution: I. Akinci, Department of Agricultural Machinery, Faculty of Agriculture, Akdeniz University, 07070 Antalya; Turkey.

E-Mail: iakinci@akdeniz.edu.tr

The following persons have actively co-operated: Jill Barbour (USDA Forest Service, National Seed Laboratory, USA), Sara Campeggiani (Museo di Storia Naturale di Trento, Italy), Roberto Crosti (APAT, Italian Environmental Agency), Marianna Mormile (Degree in Biological Sciences), Serena Mugnaini (University of Siena), Massimo Nepi (university of Siena), Ettore Pacini (University of Siena).

Copies of the files prepared were informally sent to, Zdenka Prochazkova, Chair of the Forest Tree and Shrub Seed Committee.

Next steps should be hosting the bibliography in ISTA web site as well as in other specific web sites and sending information to research institutions and persons dealing with Juniper propagation.

**A Project 3: Comparative tests of *Abies* germination**

**B Project leader: George Edwards**

**C Summary of intermediate results and main progresses**

The project is not finalised:

No actual work has yet begun due to a lack of seeds. Data-recording sheets have been drafted and will be circulated to participating laboratories early in 2006. Efforts will be increased to secure at least one suitable seedlot to begin the ring test in 2006. Finalisation has been postponed until 2008.

**A Project 4: Comparative tetrazolium tests of *Abies***

**B Project leader: Zdenka Prochazkova**

**C Summary of intermediate results and main progresses**

The project is not finalised:

A questionnaire focused on methods applied for testing of viability of all *Abies* species included in the ISTA Rules was circulated to all ISTA laboratories in July 2006. Later the questionnaire was distributed to other non-ISTA laboratories known testing tree and shrub seeds. Evaluation of returned questionnaires has been in process.

#### **INTRODUCTION OF RULES CHANGES**

**A Project 1: Revision of pure seed definitions (PSD)**

**B Project leader: George Edwards**

**C Summary of intermediate results and main progresses**

The project is not finalised:

An updated proposal to revise the ISTA Rules concerning Pure Seed Definitions for several coniferous seeds has been submitted. The proposed revisions have been included in the Proposed Rule Changes to be voted on at the ISTA Congress in Brazil, 2007. Finalisation has been postponed until 2007.

**A Project 2: Harmonisation Table 6. Tetrazolium tests with Table 2. Sampling**

**B Project leader: Zdenka Prochazkova**

**C Summary of intermediate results and main progresses**

The project is not finalised:

No progress yet. Finalisation has been postponed until 2007.

#### **Rules Accompanying Publications**

**A Project 1: ISTA Tree and Shrub Seed Handbook - revision**

**B Project leader: Zdenka Prochazkova**

**C Summary of intermediate results and main progresses**

The project is not finalised:

Corrections of text in scanned (electronic) copy have been done. Tables' transcription is in process. Finalisation has been postponed until 2007.

- A Project 2: Seedling Evaluation Handbook**
- B Project leader: Zdenka Prochazkova**
- C Summary of intermediate results and main progresses**

The project is not finalised:  
No progress yet.

#### **TRAINING AND EDUCATION WORKSHOPS**

- A Project 1: Tree and Shrub Seed Tetrazolium Workshop**
- B Project leader: Stefanie Krämer**
- C Summary of final results and main progresses**

The project was finalised in June 2005.

- A Project 2: ISTA FTS Seminar – Verona 2006**
- B Project leader: Fabio Gorian**
- C Summary of intermediate results and main progresses**

The project was finalised in September 2007.

#### **PROFICIENCY TESTS**

- A Project 1: Tree and Shrub Seed Germination – 1<sup>st</sup> round with 1 species**
- B Project leader: Zdenka Prochazkova**
- C Summary of intermediate results and main progresses**

The project is not finalised.

A questionnaire aimed to determine how many laboratories would like to participate in tree and shrub seed proficiency tests and what species are the most frequently tested was circulated to all ISTA laboratories in July 2006. Later the questionnaire was distributed to other non-ISTA laboratories known testing tree and shrub seeds. Evaluation of returned questionnaires has been in process.

#### **Special Projects**

- A Project 1: Harmonisation of the ISTA and AOSA Rules**
- B Project leader: Victor Vankus**
- C Summary of intermediate results and main progresses**

The project is not finalised.

The work accomplished during 2006 was on adding methods to the AOSA rules:

Add purity and germination methods for several species already listed in the ISTA rules to the AOSA Rules for Testing Seeds (*Alnus*, *Cercis*, *Juniperus*, *Morus* and *Taxodium*). AOSA Tree and Shrub group agreed to work on determination of purity working weights and germination methods for *Juniperus virginiana* and *Taxodium distichum* during 2005-2007. Work is ongoing with AOSA rule proposal expected in 2007.

Also, a study at two to three AOSA laboratories on the germination method of *Juniperus virginiana* and *Taxodium distichum* was started. Assuming the current ISTA germination methods are observed to be equal to or better than other methods studied, a rule proposal will be submitted to AOSA in 2007 that will match the ISTA method. At the current time neither species is part of the AOSA rules.

- A Project 2: Publication of Proceeding of the FTS Committee Workshop, Prague 2003**
- B Project leader: Zdenka Prochazkova**
- C Summary of final results and main progresses**

The project was finalised in 2005.



PART 1

PROGRESS REPORT AND WORKING PROGRAMME UPDATE

A Rules Development

Introduction of New Methods

	TCOM	Method name/Subject	Proposed finalisation	Collaboration
1	GER	Testing Seed Mixtures	2006	RUL, BSC, PUR

Introduction of New Species

	COM	Species	Subject	Proposed finalisation	Collaboration
1	GER	<i>Crambe abyssinica</i>	Germination Test	Finalised in 2005	RUL
	GER	<i>Triticum dicoccum</i>	Germination Test	Finalised in 2006	RUL

Introduction of Rules Changes

	TCOM	Subject	Proposed finalisation	Collaboration
1	GER	Revision of Substrate Definitions in line with European Standards definitions for Growing Media	Finalised in 2005	-
2	GER	Use of Mixed Growing Media (Compost) as a Primary substrate for the germination of Sunflower ( <i>Helianthus annuus</i> )	Finalised in 2005	STA
3	GER	The use of KNO <sub>3</sub> for dormancy breaking in <i>Hordeum vulgare</i> .	Finalised in 2006	-
4	GER	Germination testing of <i>Betula pendula</i> and <i>B. pubescens</i> using 4 by 100 seed replicates	Finalised in 2006	FTS
5	GER	The use of KNO <sub>3</sub> in the germination testing of Brassicas	Finalised in 2006	STA
6	GER	Incorporating ISTA Seedling Evaluation Handbook abnormal seedling codes into the Rules	Finalised in 2006	-
7	GER	Merger of Germination Rules and Annexes	Finalised in 2006	RUL
8	GER	Revision of Germination Chapter and Seedling Evaluation Handbook to reflect Quality Assurance requirements, e.g. tolerances for normal seedlings or for abnormal seedlings and dead seed; checking germination media for the presence of toxic materials; providing additional information on seedling evaluation e.g. <i>Lolium</i>	Ongoing	RUL

B Publications

Scientific information publications

	COM	Publication title	Proposed finalisation	Collaboration
1	GER	Method Validation Report of Investigation into substrate use for Sunflower seed Germination	Finalised in 2005	STA, RUL
2	GER	Method Validation Report of Investigation into the use of KNO <sub>3</sub> for Brassica germinations	Finalised in 2006	STA, RUL

3	GER	<p>ISTA Handbook on Seedling Evaluation 3<sup>rd</sup> Edition, 2006          Amendments to the ISTA Handbook on Seedling Evaluation, 3<sup>rd</sup> Edition, 2003 – Amendments 2006          The amendments consist of:</p> <ul style="list-style-type: none"> <li>• Introduction of guidance on the evaluation of primary roots of grasses into <i>Section 12: Seedling Type D – Seedling Group A A-1-2-3-1 (Lolium)</i></li> <li>• Revision of <i>Section 4: Laboratory Conditions for Seedling Evaluation</i> to add the new substrate definitions, i.e. growing media and organic growing media and the germination parameters</li> <li>• Addition of an Appendix 5 including illustrative Standard Operating Procedures to reflect quality assurance requirements, i.e. Growing Media Specification Checks on: Water Retention; Conductivity; pH; and innocuity; and Temperature Measurement and Control of Temperature</li> </ul>		
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### C Workshops and Seminars

#### Training and education workshops

	COM	Workshop subject	Proposed Date	Region
1	GER, TEZ	ISTA Germination and Tetrazolium Workshop on Tropical and Subtropical Seed	30 April – 3 May 2007	Brazil
2	GER	ISTA Seed Testing Workshop	14 – 18 May 2007	USA
3	GER	Germination Testing; the use of Seedling Evaluation Handbook; and Quality Assurance in the Germination Laboratory	Autumn 2007 – to be finalised	Angers, France
4	GER	Germination testing and use of Seedling Evaluation Handbook	To be finalised – awaiting funding	Uganda

### E Special Projects

	COM	Project name/subject	Proposed finalisation	Collaboration
1	GER	Effect of different temperature regimes on the germination of Sunflower	2007	STA
2	GER	Evaluation of new Codification used in 2004 Seedling Evaluation Handbook and whether it should be used in the Rules	Finalised in 2006	-
3	GER	Germination protocols for wild flower seed species incorporated into conservation seed mixtures – preliminary investigation	2007	FSC
4	GER	Introduction and improvement of germination methods for tropical and sub-tropical species	2007	-
5	GER	Liaison with the FSC and FTS Committees	ongoing	FTS
6	GER	Questionnaire to African countries to find out which species need to be added the ISTA Rules and in which they have experience	Finalised in 2006	-
7	GER	Testing Seed Mixtures	2006	RUL, BSC, PUR
8	GER	The evaluation of cotyledons in relation to discolouration and the 50% rule	2007	-
9	GER	The introduction of guidance for the evaluation of primary roots of grasses	Finalised in 2006	-
10	GER	The use of Crepe paper/Sand as a germination media for pea seed germination	2007	STA
11	GER	The use of GA <sub>3</sub> for dormancy breaking in <i>Eruca sativa</i>	2007	-
12	GER	The use of KNO <sub>3</sub> for dormancy breaking in temperate cereals	Finalised in 2005	-
13	GER	The use of KNO <sub>3</sub> in germination testing of Brassicas	Finalised in 2006	STA
14	GER	Validation study on Germination Temperature for <i>Lactuca</i>	Finalised in 2005	STA

## PART 2

### COMMITTEE MEMBERSHIP LIST

Please check and adjust the membership list of your committee.

Chair:	1	Ronald Don	United Kingdom
Vice-chair:	2	Sylvie Ducournau	France
Members:	3	Doris Groth <sup>1</sup>	Brazil
	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 <sup>2</sup>	United States
	16	Kari Fiedler <sup>see2</sup>	United States
	17	Takayuki Okuda <sup>see1</sup>	Japan

<sup>1</sup> Retired from the Committee in 2006 and replaced by Takayuki Okuda

<sup>2</sup> Retired from Committee in October 2005 and replaced by Kari Fiedler

## PART 3

### PROJECT PROGRESS

1	GER	Effect of different temperature regimes on the germination of Sunflower	2007	STA
2	GER	Evaluation of new Codification used in 2004 Seedling Evaluation Handbook and whether it should be used in the Rules	Finalised in 2006	-
3	GER	Germination protocols for wild flower seed species incorporated into conservation seed mixtures – preliminary investigation	2007	FSC
4	GER	Introduction and improvement of germination methods for tropical and sub-tropical species	2007	-
5	GER	Liaison with the FSC and FTS Committees	ongoing	FSC FTS
6	GER	Questionnaire to African countries to find out which species need to be added the ISTA Rules and in which they have experience	Finalised in 2006	-
7	GER	Testing Seed Mixtures	2006	RUL, BSC, PUR
8	GER	The evaluation of cotyledons in relation to discolouration and the 50% rule	2007	-
9	GER	The introduction of guidance for the evaluation of primary roots of grasses	Finalised in 2006	-
10	GER	The use of Crepe paper/Sand as a germination media for pea seed germination	2007	STA
11	GER	The use of GA <sub>3</sub> for dormancy breaking in <i>Eruca sativa</i>	2007	-
12	GER	The use of KNO <sub>3</sub> for dormancy breaking in temperate cereals	Finalised in 2005	-
13	GER	The use of KNO <sub>3</sub> in germination testing of Brassicas	Finalised in 2006	STA
14	GER	Validation study on Germination Temperature for <i>Lactuca</i>	Finalised in 2005	STA

- A** **Project 1:** Effect of different temperature regimes on the germination of Sunflower
- B** **Project leader:** Sylvie Ducournau
- C** **Summary of (intermediate/final) results and main progresses**
- The project is underway and is nearing completion: Independent experts/validation scrutinisers have been appointed and the protocol has been agreed by GERM, STAT and the two independent experts/validation scrutinisers. The seed has been tested and the results are being analysed. A validation report will be finalised in 2007.
- A** **Project 2:** Evaluation of new Codification used in 2004 Seedling Evaluation Handbook and whether it should be used in the Rules
- B** **Project leader:** Anny van Pijlen and Gillian McLaren
- C** **Summary of (intermediate/final) results and main progresses**
- The project has been completed and Anny and Gillian have tabled proposals for changes to the Rules. These have been accepted by the committee and will be put to the membership at the 2007 ISTA Meeting in Brazil.
- A** **Project 3:** Germination protocols for wild flower seed species incorporated into conservation seed mixtures – preliminary investigation
- B** **Project leader:** Natasha Ryan and Ronald Don
- C** **Summary of (intermediate/final) results and main progresses**
- The project is underway and is nearing completion: Independent experts/validation scrutinisers have been appointed and the protocol has been agreed by GER and the two independent experts/validation scrutinisers. The seed has sent to participating laboratories and testing should be completed by February 2007. Validation report will be finalised in 2007.
- A** **Project 4 and 6:** Questionnaire to African countries to find out which species need to be added the ISTA Rules and in which they have experience. Introduction and improvement of germination methods for tropical and sub-tropical species
- B** **Project leader:** Grethe Tarp and Lea Mazor
- C** **Summary of (intermediate/final) results and main progresses**
- List of important species has been ascertained from questionnaires. Many of the species already included in ISTA Rules and little progress made on organising comparative tests for species not in the Rules.
- A** **Project 5:** Liaison with the FSC and FTS Committees
- B** **Project leader:** Lea Mazor and Zdenka Procházková
- C** **Summary of (intermediate/final) results and main progresses**
- Ongoing – proposal for testing of *Betula pendula* and *B. pubescens* using 4 by 100 seed replicates arose from work of FTS and the FSC made substantial contributions to the protocol for the Wild Flower comparative test
- A** **Project 7:** Testing Seed Mixtures
- B** **Project leader:** Ronald Don
- C** **Summary of (intermediate/final) results and main progresses**
- Proposals for a workbook submitted to RUL, BSC and PUR in 2006 and discussed at 2006 Zurich meeting. Further work required on homogeneity of mixture seed lots before proposals can be finalised. The further work is dependent on finance/sponsorship becoming available.

- A** **Project 8:** The evaluation of cotyledons in relation to discolouration and the 50% rule
- B** **Project leader:** Takayuki Okuda (to be confirmed)
- C** **Summary of (intermediate/final) results and main progresses**
- Takayuki has produced diagrams and photographs of seedlings with various degrees of damage and discolouration. These have been circulated to GER and opinions sought. Based on the results an appendix to the Seedling Evaluation Handbook will be prepared giving definitive advice on evaluation of seedlings with damaged/discoloured cotyledons in 2007.
- A** **Project 9:** The introduction of guidance for the evaluation of primary roots of grasses
- B** **Project leader:** Sylvie Ducournau
- C** **Summary of (intermediate/final) results and main progresses**
- The project is completed and new guidance produced as an amendment to the ISTA Handbook on Seedling Evaluation
- A** **Project 10:** The use of Crepe paper/Sand as a germination media for pea seed germination
- B** **Project leader:** Kari Fiedler
- C** **Summary of (intermediate/final) results and main progresses**
- The project is underway: Independent experts/validation scrutinisers have been appointed and the protocol has been agreed by GERM and the two independent experts/validation scrutinisers. The seed for the comparative test will be sent to participating laboratories in February 2007. It is hoped that a validation report will be prepared and finalised in 2007.
- A** **Project 11:** The use of GA3 for dormancy breaking in *Eruca sativa*
- B** **Project leader:** Sylvie Ducournau
- C** **Summary of (intermediate/final) results and main progresses**
- Project to be initiated in 2007
- A** **Project 12:** The use of KNO<sub>3</sub> for dormancy breaking in temperate cereals
- B** **Project leader:** Günter Müller
- C** **Summary of (intermediate/final) results and main progresses**
- The project is finalised: Results of comparative test were presented at the ISTA Bangkok meeting in 2005 and Rules proposal accepted at the 2006 Zurich meeting of ISTA
- A** **Project 13:** The use of KNO<sub>3</sub> I the germination testing of *Brassica* spp.
- B** **Project leader:** Anders Lomhold
- C** **Summary of (intermediate/final) results and main progresses**
- The project is finalised: Results of comparative test will be presented at the ISTA Brazil meeting in 2007 together with a Rules proposal.
- A** **Project 17:** Validation study on Germination Temperature for *Lactuca*
- B** **Project leader:** Jeremy Smith/Ronald Don
- C** **Summary of (intermediate/final) results and main progresses**
- Scrutineers appointed, protocol agreed, comparative trial completed. Unfortunately there was no significant difference between germinations obtained at 15°C and 20°C with all lots used in the trial having germinations greater than 97%. The trial will have to be repeated with seed of more variable germinations before any conclusions can be made on whether 15°C can be used as a temperature for *Lactuca* germination tests.

**PART 4****A Information: Issues of Common Technical Interest****B Request list**

The Committee has been involved in technical questions raised by ISTA Members and non-members:

<b>Date</b>	<b>Country</b>	<b>Subject</b>
11.02.2004	Germany	Fungicide treatment products for seed of <i>Linum usitatissimum</i> affected by <i>Alternaria linicola</i>
07.20.2004	Netherlands	Dormancy and germination problems found in grass seeds after long term low humidity and low temperature storage
10.25.2004	EU Commission	General information on <i>Claviceps purpurea</i>
11.20.2004	Iran	References and information on the priming of seeds of field crops
11.22.2004	Philippines	Procedures for germination testing of wheat
06.12.2004	Switzerland	Evaluation of seedlings according to ISTA Rules and the and the treatment of seedling assessed as abnormal at intermediate counts
06.12.2004	Switzerland	Whether dormancy breaking treatments should be limited to those given in column 6 of table 5A in the ISTA Rules
11.01.2005	USA	Testing blends of different varieties of a species and reporting results on ISTA Certificates.
01.18.2005	India	The germination of seed obtained from crops irrigated with water containing high levels of fluorides
01.26.2005	Kazakhstan	Requirements that have to be met by seed imported into Kazakhstan
04.03.2005	UK	Supplier of germination paper that meets ISTA requirements
03.15.2005	France	Heat treatment or other treatment required to destroy the germinative power of seeds of <i>Schinus terebinthifolius</i> (Brazilian pepper spice)
03.31.2005	Switzerland	Reporting germination results on ISTA Certificates
06.22.2005	Indonesia	Testing true Shallot seed
06.29.2005	South Korea	Germination procedures for Swordbean

07.26.2005	Japan	Definitions and specifications for growing media used in ISTA laboratories. Membership of ISTA as a company laboratory and participation in proficiency tests as a volunteer laboratory
05.09.2005	India	Germination procedures for <i>Coraindrum sativum</i>
09.13.2005	USA	Use of creped cellulose paper and creped cellulose paper plus sand for germination tests and
09.26.2005	UK/Angola	Equipment necessary for an ISTA registered Seed Testing Laboratory and field testing laboratories. Membership costs for Angola joining ISTA
09.27.2005	Switzerland	How to report the results of germination tests where a laboratory applies fungicides to the seed prior to testing
10.14.2005	Germany	Procedures for the use of vacuum counters for planting germination tests
11.21.2005	Netherlands	Reporting results of germination tests as soon as an above standard result is obtained
11.30.2005	Switzerland	Possibility of mechanical damage during transport of proficiency samples.
12.13.2005	Germany	Tolerances for 100% germination
12.20.2005	Switzerland	Reporting germination results when less than 400 seeds are tested
12.22.2005	Canada	Application of tolerances when samples are retested more than once
1.11.2006	Australia	Test protocols for <i>Trifolium subterraneum</i> and assessment of <i>T. subterraneum</i> seedlings
1.27.2006	Czech Republic	Germination working sample sizes for <i>Aesculus</i> , <i>Castanea</i> , <i>Corylus</i> and <i>Quercus</i> seeds
1.31.2006	Switzerland	Dormancy breaking procedures permitted by the ISTA Rules
2.1.2006	Japan and Switzerland	Confirming the viability of fresh seeds by laboratories not accredited to carry out TZ tests or where TZ test method is not in the ISTA Rules
2.1.2006	Japan	Assessment of seedlings with damage to the basal parts of their cotyledons
2.16.2006	Netherlands	Quality criteria for water used in germination tests

2.28.2006	Argentina	Germination Results' Rounding Procedures
3.9.2006	Switzerland	Dealing with germination counting periods that coincide with weekends
3.23.2006	UK	Differences in dormancy levels of GM and non GM Brassicas
4. 6.2006	India	Retest procedures for infected seed
4.6.2006	Canada	Testing germination media for phytotoxicity
4.13.2006	USA	Testing <i>Satureja hortensis</i> on Copenhagen tanks
4.18.2006	India	Germination protocol for Coriander
4.20.2006	Latvia	Germination procedures for beet seed
4.21.2006	India	Pure seed definitions to be applied when obtaining Coriander seed for germination tests
4.26.2006	Japan	Assessment of seedlings with chlorophyll deficiency
5.16.2006	Netherlands	Germination testing protocols for seed used to produce rootstocks for crops such as Tomato and Cucumber
5.18.2006	Nepal	Germination testing of Papaya seed
8.2.06	Japan	ISTA Proficiency Test Rating System for germination
8.16.2006	Argentina	Classification of dead seed and abnormal seedlings of Sorghum and Alfalfa
8.29.2006	Switzerland	Evaluation of Wheat and Triticale seedlings with bumps on their coleoptiles
8.30.2006	Brazil	Germination testing of Papaya seed
9.5.2006	Australia	Simultaneous use of pre-chilling and KNO <sub>3</sub> for breaking dormancy
9.6.2006	Vietnam	Longevity equation for bitter gourd seed
9.7.2006	New Zealand	Use of applied fungicides in germination tests
9.21.2006	Hungary	Request for the inclusion of additional germination method in the ISTA Rules for <i>Brassica</i> spp. and <i>Sinapis</i> spp.
10.5.2006	Norway	Relationship between germination and Tetrazolium test results of sprouted temperate cereals

11.15.2006	Norway	Practicalities of applying growing media specifications
11.21.2006	Japan	Evaluation of necrosis at point of attachment of cotyledons
11.21.2006	Japan	Evaluation of cotyledons of abnormal shape in Cucurbitaceae
11.28.2006	Switzerland	Effectiveness of <i>Rhizobial</i> inoculums of Alfalfa
11.28.2006	Australia	When to end a germination test
11.28.2006	Germany/Indonesia	Use of HNO <sub>3</sub> or KNO <sub>3</sub> to break dormancy of rice
12.12.2006	Lithuania	Promoting beet germination



**PART 1**

**PROGRESS REPORT AND WORKING PROGRAMME UPDATE**

**A Rules Development**

**Introduction of Rules Changes**

	TCOM	Subject	Proposed finalisation	Collaboration
1	MOI	MOI has prepared a major revision of the Rules chapter. The revision includes a change in the basic reference method, and general clarification and improvement of the methodology. The final Rules change proposal has been submitted to the ISTA secretariat.	April 2007	-

**B Publications**

**Rules accompanying publications**

	COM	Publication title	Proposed finalisation	Collaboration
1	MOI	Handbook The first draft handbook has been available to committee members for discussion. The second draft has been discussed as regards content, in a working group meeting in October 2006. The next steps will be: adding illustrations, proof reading for grammar/English, and editing. These steps should be ready by the Congress of 2004. The Handbook has to be published before December 31, 2007, as this is the moment when the new Rules chapter comes into force.	December 2007	-

**C Workshops and Seminars**

**Training and education workshops**

	COM	Workshop subject	Proposed Date	Region
1	MOI	Moisture. A one-day workshop was held in conjunction with the AOSA meeting.	June 2006	USA
2	MOI	Moisture Investigate possibilities for organising workshops in Africa, Asia and New Zealand. No progress, because the committee focussed on Rules chapter and Handbook. Will be discussed during Congress of 2007,	2008	

**D Proficiency Tests**

	COM	Proficiency Test Subject	Proposed date	Collaboration
3	MOI	Moisture to be included in round 07-2 <i>Medicago</i> (no grinding).	June 2007	PTC

## PART 2

### COMMITTEE MEMBERSHIP LIST

Chair:	1	Harry Nijënstein	Netherlands
Vice-chair:	2	Jette Nydam	Denmark
Members:	3	Joseph Ahenda	Kenya
	4	Olfat H. El Bagoury	Egypt
	5	Mark A. Bennett	United States
	6	Matt Daws	United Kingdom
	7	Gerarda de Boer – Raatgever	Netherlands
	8	Ronald Don	United Kingdom
	9	Johannes Dornhecker	Austria
	10	Deon Erdey	South Africa
	11	Robert Karrfalt	United States
	12	Maria-Rosaria Mannino	France
	13	Craig McGill	New Zealand
	14	Pasquini, Sergio	Italy
	15	Maria Angela Tillman	Brazil

Patricia Berjak resigned as a member of the Committee. She has been on the committee for a period of almost 30 years, and has contributed significantly to the work of the committee with regard to moisture testing in non-orthodox seeds.

Robert Karrfalt is the MOI liaison to Tree and shrub seeds committee.

## PART 3

### PROJECT PROGRESS OTHER PROJECTS

#### **A Project 1: Comparative testing**

#### **B Project leaders: Harry Nijënstein & Ronald Don**

#### **C Summary of (intermediate/final) results and main progresses**

Samples of 10 species, differing in oil content from 2-43%, were sent to 14 laboratories. Of each species two moisture levels were tested, using different temperatures (103 and 130°C) and different durations of the test (1 – 96 hours). The main goals were to find an alternative for the Karl Fischer basic reference method, and to investigate the effect of oil content on the results of the moisture test.

The results were evaluated. It was concluded that is impossible to use the oil content as a separator between the low and the high temperature method for species.

The results will be presented in a presentation during the ISTA Seed Symposium of the 2007 ISTA congress in Brazil, and will be published in SST.

#### **A Project 2: Assessment of water content in non-orthodox seeds.**

#### **B Project leader: Deon Erdey**

#### **C Summary of (intermediate/final) results and main progresses**

The ISTA Seed Moisture Committee seeks to establish rules about drying of recalcitrant seed material, which could be no better than guidelines, because of the inherent variability of these and other non-orthodox seeds. Nevertheless, both to establish the possibility of sound guidelines and to emphasise the unpredictability of recalcitrant and other non-orthodox seeds, the working group for assessment of water content in recalcitrant and other non-orthodox seed material has undertaken to monitor water contents of a spectrum of species of recalcitrant/non-orthodox seeds, dehydrated under prescribed conditions in relation to the loss of vigour and viability. To this aim, the present report summaries the results obtained for the period 2004 – 2005.

As found previously for other non-orthodox species, the conclusions are:

- Water content values differs greatly between the various seed components
- Determining water content on a whole seed basis only for desiccation sensitive seeds underestimates the desiccation sensitivity of the germinative axis tissues.

The results have been published as:

ISTA Moisture Committee Progress Report – Working Group for assessment of water content in recalcitrant and other non-orthodox seed material.  
Seed Testing International No. 131, April 2006, p. 20-21.

**A Project 3: Survey on non-orthodox seed moisture testing**

**B Project leader: Craig McGill**

**C Summary of (intermediate/final) results and main progresses**

The survey has been carried out. In total 60 laboratories responded. The results have been published in Seed Testing International (STI) No. 130, October 2005, pages 43-44 (Non-orthodox Seed Moisture Testing Survey – Responses, by Craig McGill). It was concluded that for most laboratories there is no demand for testing the moisture of seed of non-orthodox species. Where there is a demand, all the species that the laboratories had an interest in, are tree species. Three issues were raised in relation to testing non-orthodox seed for moisture: Should a minimum number of seeds rather than weight of seeds be specified for testing, should seed be cut rather than ground, and should only 'healthy' seed be tested for moisture. The conclusions and the issues that were raised will be discussed during our meeting at the 2007 Ordinary Meeting in Brazil.

**PART 4**

**A Information: Issues of Common Technical Interest**

**B Request list**

The Committee has been involved in technical questions raised by ISTA Members and non-members:

Date	Country	Subject
12-09-2005	India	Should the lid of the containers in the desiccator be on the containers?
04-07-2006	CH-ISTA	Information needed on soft wheat test.
04-21-2006	India	Enquiry for testing coriander seeds for moisture test.
09-06-2006	Vietnam	Enquiry for test method for bitter gourd seed.
11-01-2006	Canada	Enquiry for official method for moisture determination in yellow peas.



## PART 1

## PROGRESS REPORT AND WORKING PROGRAMME UPDATE

## B Publications

## Scientific information publications

	COM	Publication title	Proposed finalisation	Collaboration
1	NOM	ISTA List of Stabilized Plant Names (hardcopy edition)	Finalized in 2005	Bettina Kahlert
2	NOM	A Multilingual Glossary of Common Plant Names	2008	FTS

## PART 2

## COMMITTEE MEMBERSHIP LIST

Chair:	1	John H. Wiersema	United States
Vice-chair:	2	Michel Porcher	Australia
Members:	3	Bernard R. Baum	Canada
	4	Michel Chauvet	France
	5	Kees van Ettekoven	Netherlands
	6	Niall Green	United Kingdom
	7	Doris Groth	Brazil
	8	Wilbert L. A. Hetterscheid	Netherlands
	9	Phyllis Himmel	United States
	10	Charles E. Jarvis	United Kingdom
	11	Maria Rosaria Mannino	France
	12	Klaus Pistrick	Germany
Left		Ken Allison	Canada
		Murray Keys	Australia

Two former members of the Committee, Ken Allison of Canada and Murray Keys of Australia, have resigned during the past year and are thanked for their past efforts in support of our activities.

The ISTA Nomenclature Committee is responsible for maintaining and updating the *ISTA List of Stabilized Plant Names*. A hardcopy edition of the last (4<sup>th</sup>, 2001) edition was distributed to the ISTA membership in November of 2005 and continues to be available as a web document at <<http://www.ars-grin.gov/~sbmljw/istaintrod.html>> on the Germplasm Resources Information Network (GRIN) of the U.S. Department of Agriculture. This will be easily accessible as a link from this report on the ISTA web page for the NOM Committee. A web page for searching this nomenclature exists at <<http://www.ars-grin.gov/cgi-bin/npgs/html/taxassoc.pl>> with versions in French, German, Portuguese, and Spanish in addition to English. The names on this *List* can be searched in conjunction with other GRIN data, such as distribution, economic uses, or common names, and easy access to these other data is available via links from the entries on the *List*.

Names on the *List of Stabilized Plant Names* are stabilized for a period of at least six years, but because of the many changes made for the 2001 edition our Committee has refrained from proposing changes to any names for the past six years. However, additions or revisions have once again been considered for the 2007 ISTA Congress, to culminate in a new 5<sup>th</sup> edition of the *List*. Those items under consideration by the Committee mainly resulted from recent additions to the *Rules*, a request from the Purity Committee to incorporate names on their *Universal List*, or comparison of ISTA nomenclature with that of the GRIN database (and AOSA). The comparisons with GRIN have provided a large number of items for consideration, many taken from the on-line document <<http://www.ars-grin.gov/~sbmljw/cgi-bin/istarp1.pl>> detailing ca. 300 differences between the two datasets (GRIN & ISTA). The items were organized into separate reports detailing 1) 194 prospective changes in family classification, 2) 2 spelling

changes of names, 3) 51 changes to authorship of names, 4) 47 changes in the linkage between synonyms and their correct names, and 5) 107 taxonomic or nomenclatural changes. These reports were circulated to Committee members and voting procedures were developed, with the final results now posted on the web at <<http://www.ars-grin.gov/~sbmljw/istavote2006.html>> and forming the basis for a list of changes proposed for consideration by the 2007 ISTA Congress <<http://www.ars-grin.gov/~sbmljw/istachanges2006.html>> to be distributed to the membership in advance of this meeting. The list of Committee-approved items includes 256 entries detailing changes to 246 names of the 2852 currently included in the *Stabilized List*, or around 8.6% of the entries. Among the editorial ones: 1 spelling change, 50 changes to authorship of names, and 40 changes in linkage between synonyms and correct names; and for those relating to taxonomy or nomenclature: 62 changes in family classification, acceptance of 36 names formerly treated as synonyms, addition of 41 new accepted names and 22 new synonyms, reduction of 62 formerly accepted names to synonymy, and conversion of one entry from a binomial to a monomial. Those changes (57) impacting the ISTA *Rules* have been passed to the Rules Committee for incorporation into the 2007 edition.

The other major activity of the Nomenclature Committee is a revision of the ISTA publication *A Multilingual Glossary of Common Plant-Names* for which "1. Field crops, grasses and vegetables" was last revised in 1982, and "2. Trees" in 1971. We have built an electronic version of both parts, searchable at <<http://www.ars-grin.gov/~sbmljw/cgi-bin/seedglossary.p>>, that links to an electronic submission form, at <<http://www.ars-grin.gov/~sbmljw/cgi-bin/submission.p>>, to allow ISTA members from various countries to review existing data and submit corrections and/or additions for any species treated in the ISTA Rules.

In conformity with the past edition of part 2, but not part 1, both the native script and a romanized version will be represented. For those crops with infraspecific groups, these will be treated in the new *Glossary*, providing both botanical names (subspecies, varieties) and cultivated plant names (groups) for cross-referencing. We invite members from various countries to contact us about possible contributions and/or feedback regarding these items in the next year. Interested collaborators can reach us via the web interface

The **List of proposed changes for *ISTA List of Stabilized Plant Names* (ed. 5)** was approved by ISTA NOM December 2006.

### **PART 3**

#### **PROJECT PROGRESS**

**A Project 1: ISTA List of Stabilized Plant Names (hardcopy edition)**

**B Project leader: John Wiersema**

**C Summary of (intermediate/final) results and main progresses**

The hardcopy edition of the ISTA List of Stabilized Plant Names was completed, largely through the efforts of Bettina Kahlert, of ISTA Technical Committee Administration, and was distributed free of charge by ISTA to the membership in November of 2005.

**A Project 2: A Multilingual Glossary of Common Plant Names**

**B Project leader: Michel Porcher**

**C Summary of (intermediate/final) results and main progresses**

While a database of the previous version of this Glossary for field crops, grasses, and vegetables, has already been created, a comparable one for trees is yet to be completed. We have identified electronically all names from the Stabilized List that pertain to the three tables in Chapter 2 of the Rules for potential inclusion in the multilingual glossary. A questionnaire was circulated among Committee members regarding various aspects of the project, with some of the results from this placed in the announcement of this project for the October, 2005 ISTA News Bulletin.

#### PART 4

#### B Request list

The Committee has been involved in technical questions raised by ISTA Members and non-members:

Date	Country	Subject
03/01/2005	Germany	On difference between GRIN and Stabilized List
04/06/2005	New Zealand	Query on Abyssinian mustard or kale Are <i>Avena nuda</i> and <i>A. sativa</i> both needed in Rules
05/05/2005	United Kingdom	
07/19/2005	France	Adding Universal List of Weeds and Crops to Stabilized List
09/02/2005	France	Expanding listing of <i>X Festulolium</i> in Rules and Stabilized List

Thanks to committee member Ken Allison for representing NOM at the Ordinary Meeting in Bangkok.



**PART 1**

**PROGRESS REPORT AND WORKING PROGRAMME UPDATE**

**A Rules Development**

**Introduction of New Methods**

	TCOM	Method name/Subject	Proposed finalisation	Collaboration
1	PUR	Rules for purity test on seed mixtures	2005	Working group on mixtures, BSC, RUL

**Introduction of New Species**

	COM	Species	Subject	Proposed finalisation	Collaboration
1	PUR	All	Prepare PSD for new species in case of application (tropical and sub-tropical species included)	To be defined	RUL, Task Force on Tropical and Subtropical species

**Introduction of Rules Changes**

	TCOM	Subject	Proposed finalisation	Collaboration
1	PUR	Propositions of changes from purity workshop 2004	October 2004	RUL
2	PUR	New format of Chapter 3 and 4 with addition of 11	October 2004	RUL

**B Publications**

**Rules accompanying publications**

	COM	Publication title	Proposed finalisation	Collaboration
1	PUR	Revise the handbook for PSD with addition of illustrations and definitions for seed mixtures	2006	RUL, FSC
2	PUR	Finalise the "Universal List of Crops and Weeds"	2005	PTC, FSC
3	PUR	Handbook on purity analysis of seed mixtures	2005/6	Working group on mixtures, BSC, RUL

**Training publications on specific seed testing topics**

	COM	Publication title	Proposed finalisation	Collaboration
1	PUR	Identification of seeds of Universal List	2007	-

## C Workshops and Seminars

### Training and education workshops

	COM	Workshop subject	Proposed Date	Region
1	PUR	Purity analysis	2005	Asia
2	PUR	Purity analysis	2006	Zurich (to be confirmed)
3	PUR	Seed identification of species in Universal List	2007	Brazil
4	PUR	Training test to familiarize laboratories with the seeds of species of "Universal List" in collaboration with PTC	2005/6	-

## E Special Projects

	COM	Project name/subject	Proposed finalisation	Collaboration
1	PUR	Develop a basic outline for workshop	October 2004	-
2	PUR	Prepare a list of seed specialists on seed identification and other technical questions	2005	-
3	PUR	Bibliography for seed identification	2005	-
4	PUR	Develop a list of botanical gardens, seed analysis stations, etc. holding seed samples of various species for distribution	2006	NOM
5	PUR	Collaborative study to determine procedure of blowing split sample of <i>Poa</i> spp. and <i>Dactylis glomerata</i>	2005	-
6	PUR	Compare the ISTA and AOSA calibration samples; provide a same supplier	2006	-

## PART 2

### COMMITTEE MEMBERSHIP LIST

The Purity Committee is composed of 11 members and is organised into 6 working groups with 10 other persons collaborating in the projects.

Chair:	1	Maria Rosaria Mannino	France
Vice-chair:	2	Jane Taylor	United Kingdom
Members:	3	S.C. Aswath Narayana	India
	4	Gerarda de Boer	Netherlands
	5	Fabio Ferrari	Italy
	6	Axel Goeritz	Germany
	7	Steve Jones	United Kingdom
	8	Monica Moreno	Argentina
	9	Deborah Meyer	United States
	10	Andreas Ratzenboeck	Austria
	11	Zita Ripka	Hungary

Ken Allison of Canada has resigned during the past year and we thank him for his contribution in support of committee activities.

## PART 3

### Working Group: Pure Seed Definitions

Leader: Steve Jones (UK)

Participants: Fabio Ferrari (IT), Zita Ripka (HU), Corinne Sahuguède (FR), Jane Taylor (UK), Bettina Kahlert (ISTA Secretariat)

**2004-2007 programme:** new edition of handbook with illustrations.

#### **Progress**

The main project of this working group for the period 2004-2007 was the new edition of the Pure Seed Definitions Handbook with illustrations. In the new handbook, each of the pure seed definitions is presented in numeric order, as specified in the ISTA Rules, together with a list of all the families and genera that are covered by that number. The new handbook is characterised by a loose-leaf format, with the PSD number on the side of pages for easy access. The handbook will contain up to six images of seeds per page, included species from Tropical and Sub-Tropical countries and also a glossary with illustrations to help analysts in the interpretation of botanical and technical terms. Its publication is planned for 2007.

#### **Working Group: Tropical and sub-tropical species**

Leader: Monica Moreno (AR)

Participants : S.C. Aswathanarayana (IN), P. Balamurugan (IN), Rosilma Pelsoni (BR), Pamela Strauss (ZA), Izelle Allison (ZA)

**2004-2007 programme :** find samples of different varieties of *Chloris gayana* to be tested to improve current rules; find adapted PSD for tropical and sub-tropical species and study other purity analysis problems related; liaison with task force.

#### **Progress**

The group participated in the revision of the PSD handbook by finding images and seeds of tropical and sub-tropical species to be included in the new version. The group was also involved in the organisation of the workshop in Kenya in July 2006 (see next paragraph).

#### **Working Group: Workshop development and organisation**

Leader: Maria Rosaria Mannino (FR)

Participants: Ken Allison (CA), Zita Ripka (HU), Monica Moreno (AR)

**2004-2007 programme:** basic outline for workshop organisation; workshop organisation in 2005, 2006 and 2007

#### **Progress**

One of the main objectives of the Purity Committee work for the period 2004-2007 is the development of workshops.

The basic outline for workshop organisation has been prepared by Ken Allison in 2005 and sent to the ISTA Secretariat. It suggests a standard programme for a purity workshop to be adapted to the particular interests of organisers and applicants. This document has been adopted as a basis for the programme definition of our two purity workshops in 2006.

The first workshop has been organised at Agroscope in Zurich, in June 22-23, some days before the ISTA Annual Open Meeting, and the second one at KEPHIS in Nakuru, Kenya in July 13-14.

The different technical subjects handled during the two meetings have been chosen on the basis of the suggestions given by both the members of the Purity Committee and the applicants. By this means, we achieved two important objectives: to make progress on methods improvement and to respond to the needs coming from the seed analysis laboratories.

During the workshop in Zurich, the technical sessions were organised with particular attention to grass species (*Festuca rubra*, *Alopecurus pratensis* and *Trisetum flavescens*). The programme covered other technical topics related to purity analysis methods: blower calibration and control of calibration samples, endosperm assessment in grasses, difficulties in species identification or distinction (e.g. *Phleum* spp., *Brassica napus* and *Brassica oleracea*), nomenclature and taxonomy, botanical basis for seed identification, control of balances, how to complete the Orange International Certificate. The workshop also included sessions on the training of purity analysts and the monitoring of accredited laboratories. The meetings

attained the maximum number of participants in relation with the local facilities: 26 participants from 15 different countries of Europe, Africa and North America. Six presenters from France, Switzerland, Denmark and USA animated the technical sessions and the discussions.

At the last ISTA Congress in Budapest 2004, the need for more workshops on species of tropical and sub-tropical countries had been pointed out by ISTA and ISTA members from these regions to enhance seed testing knowledge. ISTA included the improvement of ISTA Rules for tropical and sub-tropical species in its objectives. Following this policy, the purity committee worked in 2006 for a workshop organisation in Nakuru. The main objective was to give to participants from tropical and sub-tropical countries the opportunity to develop and exchange technical skills in seed science and technology and also to plan the future work to do together for ISTA methods improvement with regard to tropical and sub-tropical species. 36 participants were present at the workshop, coming from 10 different African countries. Six presenters from France, Denmark and Kenya animated technical sessions and discussions. An important part of the programme was reserved for items related to species of tropical and sub-tropical countries: use of Pure Seed Definitions for *Setaria sphacelata* (36), *Chloris gayana* (42) and for *Pennisetum glaucum* (43), purity analysis of *Tanacetum cinerariifolium* and *Brassica rapa*, introduction of new species in ISTA rules, needs for ring tests and proficiency tests. At the end of the workshop participants agreed on working together to improve participation and contribution towards ISTA at technical and policy level.

The group on Workshop development and organisation was also involved in drafting the following articles:

1. Report of the ISTA Purity Workshop in Budapest (May 11-12, 2004), Seed Testing International No 128;
2. Report of ISTA Purity Workshops 2006: Zurich (Switzerland, June 22-23) and Nakuru (Kenya, July 13-14), Seed Testing International No 132.

### **Working Group: Blowing**

Leader: Gerarda de Boer (NL)

Participants: Corinne Sahuguède (FR), Deborah Meyer (US), Jette Nydam (DK), Jane Taylor (UK), Dorothy van Horsen (CA)

**2004-2007 programme** : blowing split samples of *Poa* spp. and *Dactylis glomerata*; blowing of mixtures; compare the ISTA and AOSA calibration sample.

### **Progress**

Some laboratories analyse *Poa* spp. and *Dactylis* spp. using two half working samples. At present, ISTA provides only "whole" calibration samples. The question was: can the *Poa* or *Dactylis* half working sample be blown using a "whole" calibration sample? Are the results obtained correct? If no, which procedure can we suggest to blow half working samples of each species? Concerning the blowing of seed mixtures, the aim was to determine if components of seed mixtures should be blown or not and how.

With these objectives, we prepared a questionnaire that we sent out in 2006 to 81 laboratories accredited for *Poaceae* analysis. They were asked on their blowing procedures: kind of blower, type of calibration sample, kind and frequency of quality control. We received 50 replies from different laboratories that showed a lot of variability in practices. As follow up of this questionnaire, some technical sessions were included in the programmes of Zurich and Nakuru workshops. The discussions have contributed to the improvement of the methods of blower calibration and sample calibration division and control. On this basis, a procedure taking into account laboratory experiences can be drawn up for validation.

For the last year of the triennium, we also decided to focus our attention on the differences in ISTA and AOSA calibration samples. The new AOSA procedure for blower calibration will also be studied. A comparative test will be initiated in 2007.

## **Working Group: Seed identification**

Leader: M.R. Mannino (FR)

Participants: Ken Allison (CA), Liciniu Dragos (FR), Fabio Ferrari (IT), Axel Goeritz (DE), Monica Moreno (AR), Andreas Ratzenboeck (AT), Zita Ripka (HU)

**2004-2007 programme:** finalize Universal List; bibliography for seed identification; list of seed specialists; list of botanical gardens; seed descriptions for UL species with glossary and images.

### **Progress**

Following the objectives defined during the previous triennium, the Purity Committee established a first version of the UL of 100 species (crops and weeds). After a first draft, 30 more species were added including crops and weeds from tropical and sub-tropical regions. An updated version has been sent in October 2005 to the ISTA Secretariat for transmission to the Proficiency Test Committee. It is now used to determine the sample composition for Proficiency Test on Other Seed Determination.

The work made in 2006 followed the objective approved by the EC of two types of list:

- one basic list including a limited number of very common species (100 or more) for Proficiency test and as minimum requirement for seed collections of all ISTA accredited laboratory
- different complementary lists, related to the region of the accredited laboratory. A laboratory that would be accredited on crops typical of regions other than its own region should have in its collection the complementary appropriated list.

During the two last workshops we discussed on regions definition and attribution of each species of the list to the regions as first step to drawn up to the complementary regional lists. We also discussed on the interest of complementary list related to the crops.

## **Working Group: Rules Development**

Leader: M.R. Mannino (FR)

Participants: Jane Taylor (UK), S.C. Aswathanarayana (IN), Gerarda de Boer (NL), Fabio Ferrari (IT), Axel Goeritz (DE), Steve Jones (GB), Monica Moreno (AR), Deborah Meyer (US), Andreas Ratzenboeck (AT), Zita Ripka (HU)

**2004-2007 programme:** purity rules improvement.

### **Progress**

On the basis of the technical discussion that we had during the workshops and after discussion among the purity committee, we proposed 12 items at the 2005 Ordinary Meeting in Bangkok, 13 items at the 2006 Ordinary Meeting in Zurich and 5 items at the ISTA Congress in Iguazu. The aims of our proposals are the Pure Seed Definitions improvement, to change the attribution to a PSD for some genera, to modify some descriptions, to harmonise or clarify some paragraphs of ISTA Rules. With the Trees and Shrubs Committee, in 2006 and 2007 we carried out an important work on the improvement and the harmonisation of PSD for trees species.

Concerning the Rules amalgamation, we propose this year a draft of amalgamation of Chapter 3 and Annexe.



## PART 1

## PROGRESS REPORT AND WORKING PROGRAMME UPDATE

## A Rules Development

## Introduction of New Methods

	TCOM	Method name/Subject	Proposed finalisation	Collaboration
1	SHC	<i>Microdochium nivale</i> / <i>Triticum</i> spp.	2005	
2	SHC	<i>Leptosphaeria maculans</i> /Brassica spp.	2006	

## Introduction of Rules Changes

	TCOM	Subject	Proposed finalisation	Collaboration
1	SHC	Annexe to Chapter 7 additional methods	2004, 05, 06	RUL/STA
2	SHC	Assimilation of Annexe to Chapter 7 with Rules Chapter 7	2006	RUL
3	SHC	Review of Methods in Chapter 7 (due 2006)	2006	RUL

## B Publications

## Rules accompanying publications

	COM	Publication title	Proposed finalisation	Collaboration
1	SHC	ISTA Seed Health Testing Handbook	2008	

## C Workshops and Seminars

## Training and education workshops

	COM	Workshop subject	Proposed Date	Region
1	SHC	APSA/ISTA Seed Health Testing Training Course	July 2006	Thailand/ASIA
2	SHC	ISTA/FAO/APSA Seed Health Testing Training Course	November 2006	Phillipines/ASIA
3	SHC	ISTA Seed Health Workshop	April 2008	Pretoria/South Africa

## Seminars

	COM	Workshop subject	Proposed Date	Region
1	SHC	6 <sup>th</sup> ISTA Seed Health Symposium	2008	South Africa

## D Proficiency Test

	COM	Project name/subject	Proposed finalisation	Collaboration
1	SHC	Method 7-003 <i>Botrytis cinerea</i> / <i>Helianthus annuus</i>	2007	PTC/ISTA Acred
2	SHC	To be confirmed	2007	PTC/ISTA Acred
3	SHC	To be confirmed	2007	PTC/ISTA Acred

## E Special Projects

	COM	Project name/subject	Proposed finalisation	Collaboration
1	SHC	Comparative Test: <i>Aphelenchoides besseyi</i> Christie / <i>Oriza sativa</i>	2007	STA
2	SHC	Comparative test: <i>Pyrenophora</i> spp. / <i>Hordeum vulgare</i>	2006	Nordic Pathology Group
3	SHC	Comparative test: SqMV / <i>Cucumis melo</i>	2007	-
4	SHC	Method development: Molecular tests for viruses in tomato and pepper seeds	2007	-
5	SHC	Validation of Molecular Seed Health Methods. Is the ISTA Validation Programme suitable?	2007	-
6	SHC	Comparative test: <i>Sclerotinia sclerotiorum</i> / <i>Phaseolus</i> spp.	2007	-
7	SHC	Seed Health Method Validation – Prioritising ISTA Member Requirements	2006	-
8	SHC	Comparative test: Replacement of lactophenol in Method 7-013	2007	-
9	SHC	Comparative test: Addition of <i>M.pinodes</i> and <i>P. medicaginis</i> var <i>pinodella</i> to method also alternative method using incubation under NUV	2009	-

## PART 2

### COMMITTEE MEMBERSHIP LIST

During the past year Carmi Omero has left to pursue a different career. We now have two vacant positions which will not be filled until a new SHC is convened for the 2007-2010 period. Current SHC and potential SHC members will be requested to fill out an application form before being accepted as a Committee Member for the new period.

Chair:	1	Valerie Cockerell	United Kingdom
Vice-chair:	2		
Members:	3	Theresa Aveling	South Africa
	4	Reyes Blanco Prieto	Spain
	5	Henrik Hansen	Denmark
	6	Dragica Ivanović	Serbia and Montenegro
	7	Harrie Koenraad	Netherlands
	8	Valérie Grimault	France
	9	Kathy Ophelkeller	Australia
	10	Petra Remeus	Netherlands
	11	Karin Sperlingson	Sweden
	12	Krystyna Tylkowska	Poland
	13	Manfred Weinhappel	Austria
	14	Jose da Cruz Machado	Brazil

## PART 3

### PROJECT PROGRESS

#### INTRODUCTION OF NEW METHODS

**Project 1: New Method:** *Microdochium nivale/Triticum spp.*

**Project leader:** Valerie Cockerell

##### Summary of (intermediate/final) results and main progresses

The project is now finalised: The comparative test was completed in 2003. The data package was sent to the ISTA Secretariat on the 21 September 2006. At the time of writing the method has been accepted by reviewers with minor modifications to be made to the validation report. It is expected this method will be proposed as a Rule for voting at the 2007 Business Meeting in Brazil.

**Project 2: New Method:** *Xanthomonas axonopodis pv. phaseoli / Phaseolus vulgaris*

**Project leader:** Petra Remeëus (previously Jim Sheppard)

##### Summary of (intermediate/final) results and main progresses

The project is finalised. This Method was accepted by the ISTA Membership at the 2006 Business Meeting in Zurich and can now be found as Method 7-021 in the ISTA International rules for Seed Testing.

**Project 3: Replacement for Existing Method:** *Leptosphaeria maculans/Brassica spp.*

**Project leader:** Jane Thomas

##### Summary of (intermediate/final) results and main progresses

This project is ongoing. The comparative test was completed in 2003. There have since been problems with the working group leader finding time to analyse and write validation report. The data has been passed on (December 2006) to the Chair of the SHC to determine the work required to finish the analysis and validation report. It is hoped this method will be submitted to the Method Validation Programme in Spring 2007.

#### INTRODUCTION OF RULES CHANGES

**Project 1: Rules Changes, Method Validation Programme (continuous)**

**Project editors:** Kathy Ophelkeller, Valerie Cockerell and Petra Remeëus

##### Summary of (intermediate/final) results and main progresses

**The project is continuous:** Two further methods were submitted to the SHC Method Validation Programme in September 2006: a new method for the detection of Pea Seed-borne Mosaic Virus and Pea Early Browning Virus with ELISA by ISHI-Veg; and a method for *Microdochium nivale* on *Triticum spp* by the ISTA SHC (see Report under Introduction of New Methods). In addition, *Pseudomonas savastanoi pv. phaseolicola* (PSP) on *Phaseolus vulgaris* was re-submitted by ISHI-Veg.

At the time of writing the submission for Pea viruses is under going review and both *M.nivale* and PSP methods have minor modifications to be completed prior to acceptance by the SHC and a proposal put forward for their inclusion in Chapter 7 to be voted on at the 2007 Business Meeting in Brazil.

The progress of this work has been aided by the generous help of the ISTA Statistics Committee particularly Jean- Louis Laffont and Sylvain Gregoire. The analysis being used in the validation of seed health methods is relatively new and sometimes novel within seed health testing. Their contribution to the validation process along with Adrian Roberts of Bioss in Scotland is invaluable.

**Project 2: Rules Changes:** Assimilation of Annexe to Chapter 7 with Rules Chapter 7

**Project leader:** Valerie Cockerell

##### Summary of (intermediate/final) results and main progresses

This project is now finalised. Assimilated text was included with the 2007 Amendments to the International Rules for Seed Testing.

**Project 3: Rules Changes:** Methods in Chapter 7 due for Review 2006

**Project leader:** Harrie Koenradt/Valerie Cockerell

**Summary of (intermediate/final) results and main progresses**

A questionnaire was compiled and sent to all ISTA Member Laboratories and a copy was posted on the ISTA web-site for other interested bodies to respond. The questionnaire was available for eight weeks over July/August 2006 and extended for a further two weeks on the intranet. A report was prepared and is available April 2007. The main recommendation from the SHC is to accept all methods for a further five years with new review date of 2011. See report for further details.

**RULES ACCOMPANYING PUBLICATIONS**

**Project 1: Publications: ISTA Seed Health Testing Handbook**

**Project leader:** Valerie Cockerell & Reyes Blanco Prieto

**Summary of (intermediate/final) results and main progresses**

The Project is ongoing: Progress is slow with some authors not meeting the extended deadline for the first draft of their agreed contributions. However it is expected that these will be received in early January 2007 in time for a meeting of the editorial group in spring 2007. A first draft should be available for interested parties to comment on during the Brazil Meeting.

**TRAINING & EDUCATION WORKSHOPS**

**Project 1: ISTA/APSA Training Course, Bangkok Thailand**

**Project leader:** Valerie Cockerell

**Summary of (intermediate/final) results and main progresses**

Project finalised

**Project 2: ISTA/FAO/APSA Seed Health Training Course, Phillipines**

**Project leader:** Dr Steve Roberts

**Summary of (intermediate/final) results and main progresses**

Project not finalised – After being deleted from the schedule for 2005/2006 twice due to a combination of Instructor availability and funds the Training Course was eventually agreed for February 2007. At the time of writing a programme has been prepared and Instructors and lectures organised. A similar weeks programme to that of the earlier Training Course in Bangkok, Thailand has been organised with more emphasis on viral diseases and PCR.

**Project 3: Seed Health Workshop, Pretoria, South Africa**

**Project leader:** Theresa Aveling/SHC

**Summary of (intermediate/final) results and main progresses**

New Project– It was agreed to consider a workshop or training course in South Africa to introduce new methods recently included in the ISTA Rules and introduce Method Validation and consider whether there is a need to form new Working Groups to validate/develop methods for agricultural crops in Africa. The Workshop would take place prior to the 6<sup>th</sup> Seed Health Symposium.

**SEMINARS**

**Project 1: 6<sup>th</sup> ISTA-SHC Seed Health Symposium**

**Project leader:** Theresa Aveling

**Summary of (intermediate/final) results and main progresses**

Project ongoing: The SHC at the 3rd Meeting of the ISTA-SHC Committee 2004-2007 agreed to Krugger National Park being a suitable venue for the Symposium, with maximum participation limited to 150. Most likely date would be April 2008, this has still to be confirmed by Theresa Aveling.

## PROFICIENCY TESTS

**Project 1:** Method 7-003 *Botrytis cinerea/ Helianthus annuus*

**Project leader:** Valerie Grimault

### **Summary of (intermediate/final) results and main progresses**

Samples will be sent to participating laboratories for testing in February 2007.

## SPECIAL PROJECTS

**Project 1:** Comparative Test: *Aphelenchoides besseyi* Christie/ *Oriza sativa*

**Project leader:** Petra Remeeus

### **Summary of (intermediate/final) results and main progresses**

There is still a need to locate a highly infected sample but it is hoped the comparative test will be posted out to participating laboratories in spring 2007.

**Project 2:** Comparative Test: *Pyrenophora spp./Hordeum vulgare*

**Project leader:** Karin Sperlingson

### **Summary of (intermediate/final) results and main progresses**

A test plan has been written and samples have been identified for this comparative test. It is hoped to send the samples to participating laboratories in March 2007.

**Project 3:** Comparative Test: SqMV/Cucumis melo

**Project leader:** Harrie Koenradt

### **Summary of (intermediate/final) results and main progresses**

Samples have been sent to participating laboratories.

**Project 4:** Method development: Molecular tests for viruses in tomato and pepper seeds

**Project leader:** Carmi Omero

### **Summary of (intermediate/final) results and main progresses**

This project is no longer ongoing due to Carmi Omero moving on to pastures new.

**Project 5:** Validation of Molecular Seed Health Methods

**Project leader:** Kathy Ophelkeller

### **Summary of (intermediate/final) results and main progresses**

The main focus of this group over the last 12 months has been the chapter on molecular methods in in seed testing for the Seed Health Handbook. A draft chapter will be completed by the end of January 2007.

**Project 6:** comparative Test: *Sclerotinia sclerotiorum/Phaseolus spp.*

**Project leader:** Jose da Cruz Machado

### **Summary of (intermediate/final) results and main progresses**

No report available.

**Project 7:** Seed Health Method Validation – Prioritising ISTA Member Requirements

**Project leader:** Henrik Hansen

### **Summary of (intermediate/final) results and main progresses**

No report available.

**Project 8:** Comparative test: Replacement of lactophenol in Method 7-013

**Project leader:** Valerie Cockerell

**Summary of (intermediate/final) results and main progresses**

A test plan was produced; two laboratories and three seed lots were considered sufficient to determine whether replacing phenol with water in Method 7-013 (*Ustilago nuda/Hordeum vulgare*) would produce equivalent results. Both laboratories have received samples for testing. Provided results show equivalence and the SHC agree the change based on the evidence presented it is hoped that a Rules proposal can be made for the 2007 ISTA Business Meeting.

**Project 9:** Comparative test: Addition of *M. pinodes* and *P. medicaginis* var *pinodella* to method also alternative method using incubation under NUV

**Project leader:** Henrik Hansen

No report available.

**PART 4**

**A Information: Issues of Common Technical Interest**

Joint Meeting of ISTA Technical Chairs and IPCC: Phytosanitary requirements regarding the movement of seed between countries, possible collaboration with IPPC Working Groups for Seed Health Committee, Purity Committee, Tree and Shrub Committee and Seed Storage Committee.

**B Request list**

The Committee has been involved in technical questions raised by ISTA Members and non-members:

Date	Country	Subject
12-01-2006	Japan	Query regarding testing of pelleted carrot seed using Method 7-002a and issuance of ISTA Certificate.
12-01-2006	USA	Request for information on protocols or companies testing fungicides applied to seed to prevent fungal growth over 12 months storage.
28-03-06	France	Query regarding timing of reading plates in Method 7-003.
18-05-06	China	Consideration of errors in annexe to Chapter 7 picked up during translation of Chapter 7 to Chinese.
15-05-06 & 05-06-06	Greece	Request for information on testing of <i>Fusarium monilliforme</i> on <i>Zea Mays</i> and other issues.
17-05-06	ISF	Query from ISF to re wording of seed treatment statement in Method 7-019.
12-06-06	Scotland	Opinion requested on proposed changes to definitions of sensitivity and specificity in an EPPO Standard (Use of EPPO Diagnostic Protocols).

09-06-06	India	Query regarding methods to test for <i>Ascochyta</i> blight in Chick pea seed.
06-07-06	ISTA Purity Committee	Request for information regarding introduction of Tropical and sub-tropical species in to the ISTA Rules.
31-08-06	Iran	Request for information on soybean seed-borne virus disease standards.
01-09-06	ISTA Accreditation	Advice on technical aspects regarding assessment of seed health testing.
07-09-2006 & 21-09-06	New Zealand	Enquiries regarding testing for endophyte and rhizobia as well as details regarding sample sizes.
08-09-2006		Query regarding testing of treated sunflower seed using Method 7-003.
18-12-06	ISHI-Veg	Multiple questions regarding, Seed Health Handbook, Methods 7-004, 7-005, and 7-019 and the Annotated List.
05-06, 06-06, 08-06, 09-06	Australia, Israel, Canada, Japan, ISTA Office.	Requests regarding SHC Membership



**PART 1**

**PROGRESS REPORT AND WORKING PROGRAMME UPDATE**

**A Rules Development**

**Introduction of New Methods**

	TCOM	Method name/Subject	Proposed finalisation	Collaboration
1	STA	Support upon request from other committees on method validation, test planning, computations	permanent	Any ISTA technical committee

**Introduction of Rules Changes**

	TCOM	Subject	Proposed finalisation	Collaboration
1	STA	Support upon request from other committees, in particular statistical help for planning experiments, and statistical review of reports	permanent	Any ISTA technical committee

**B Publications**

**Rules accompanying publications**

	COM	Publication title	Proposed finalisation	Collaboration
1	STA	Handbook on seed mixtures (tolerances, Statistical test)	Within the term 2007-2010	ECOM Ron
2	STA	Proficiency tests for GM seeds detection	permanent	ISTA Secretariat
3	STA	Stat review of reports before rule introduction	2006 done	SHC, VAR, GER

**Training publications on specific seed testing topics**

	COM	Publication title	Proposed finalisation	Collaboration
1	STA	Printout and CD of the workshops PowerPoint and software of the workshop statistical aspects of GMO detection done	2006 done	GMO TF, secretariat

**Scientific information publications**

	COM	Publication title	Proposed finalisation	Collaboration
1				

**C Workshops and Seminars**

**Training and education workshops**

	COM	Workshop subject	Proposed Date	Region
1	STA	Contribution to Biotech Trait Detection (Iowa)	2006 done	United States

**Seminars**

	COM	Seminar subject	Proposed Date	Region
1	STA	Eurofins seminar(attendance)	Feb 2006 done	France

## D Proficiency Tests

	COM	Proficiency Test Subject	Proposed date	Collaboration
1	STA	Help on request from the committees	permanent	Any Committee
2	STA	repeatability reproducibility for binomial data	2006 done	SHC and others
3	STA	Official rating of past PTS organised on chapter 8	2006 done	Secretary General+ expert group

## E Special Projects

	TCOM	Project name/subject	Proposed finalisation	Collaboration
1	STA	Work in the STA-GMO TF for proficiency tests	2006 done	Head of TCOM Administration
2	STA	Performance data evaluation documents revised	2006 done	Head of TCOM Administration
3	STA	PT R computer program for Purity committee	2006 done	PUR
4	STA	ENGL/ISTA meeting	2006 done	Secretariat
5	STA	Strengthen the collaboration with UPOV on concrete single projects.	2006 done	Secretary General
6	STA	Revision on way to introduce new methods in moisture	2006 done	MOI
7	STA	Elaborate statistical part of the generic MVP, support MVP project	2006 done	ECOM
8	STA	Drafting of the ISTA Position paper on Uncertainty of measurement.	2006 done	ECOM

## PART 2

### COMMITTEE MEMBERSHIP LIST

Chair:	1	Sylvain Grégoire	France
Vice-chair:	2	Kirk Remund	United States
Members:	3	Julianna Banyai	Hungary
	4	Julia Barabas	Hungary
	5	Olfat El Bagoury	Egypt
	6	Wilfried Jackisch	Germany
	7	Michael Kruse	Germany
	8	Jean-Louis Laffont	France
	9	Andrew Peace	United Kingdom
	10	Erhard Thomas	Germany
	11	Mohamed Tourkmani	Morocco
	12	Petra Remeus	Netherlands

For the term 2007-2010 JL Laffont is proposed as chairman of the ISTA Statistic Committee. The committee thank S. Grégoire for his chairmanship and all the successful work that has been done in the term 2004-2007.

### PART 3

#### PROJECT PROGRESS

##### **A Project 1 and 2: Accreditation for the performance based approach as described in chapter 8 GMs**

##### **C Summary of (intermediate/final) results and main progresses**

The proficiency tests for GMOTF from PT1 to PT6 have been rated by a group of committed experts, following an agreed procedure.

Documents on Performance Data Evaluation (specific to performance based approach for chapter8) have been analysed in light of questions from labs and accreditation team.

Intensive collaboration with the ISTA GMO task force in the discussions on the accreditation for GM testing laboratories.,

Participation in the ISTA/ENGL meeting to explore intensive collaboration between the two groups in the future.

Support of the ISTA GMO task force in their work in the organisation committee for the 1<sup>st</sup> World Conference on GMO analysis.

##### **A Project 7: ISTA method validation program**

##### **C Summary of (intermediate/final) results and main progresses**

Comments received from TC chairs are pending to be analysed within the statistic committee.

The statistical part has been written and sent to ECOM J Hampton, and used at Zurich meeting.

##### **A Project 3: Improve and enhance ISTA Proficiency test programs**

##### **C Summary of (intermediate/final) results and main progresses**

Work for Proficiency test committee and ISTA secretariat, on request for Purity, trying to promote harmonisation between committees, to promote or support some comparative tests

##### **A Project 4, 5 and 8: Enhancing ISTA position**

##### **C Summary of (intermediate/final) results and main progresses**

Activities to distribute the ISTA positions and work in different forums and organisations (ENGL, UPOV, Eurofins, Companies...)

Support ISTA views on uncertainty by the mean of the tolerance tables.

### PART 4:

#### **A Information: Issues of Common Technical Interest**

Statistics:

Progress in 2006: Bayesian approach, use of R as free software to develop new tools, repeatability reproducibility for binomial data.

#### **B Request list**

The Committee has been involved in technical questions raised by ISTA Members and non-members:

Date	Country	Subject
More than 60 times	Many countries	Testing plans (comparative tests...), Use of rules, use less seeds, quality control, ...



## PART 1

## PROGRESS REPORT AND WORKING PROGRAMME UPDATE

## COMMITTEE MEMBERSHIP LIST

Chairperson:	1	David Mycock	South Africa	
Vice-chair:	2	Hugh Pritchard	United Kingdom	
Vice-chair:	3	Theresa Aveling	South Africa	
Members:	4	Mark Bennett	United States	
	5	Patricia Berjak	South Africa	
	6	Reyes Blanco	Spain	
	7	Celia de la Cuadra	Spain	
	8	Olfat El Bagoury	Egypt	
	9	Deon Erdey	South Africa	
	10	Elena Gonzalez	Spain	
	11	Pedro León - Lobos	Chile	
	12	Miller McDonald	United States	
	13	Heriel Msanga	Tanzania	
	14	Moctar Sacandé	Burkina Faso	
	Left		Loren Wiesner	United States

## ACTIVITY REPORT OF THE SEED STORAGE COMMITTEE 2006

## Working Group 1. Orthodox Seeds

A. Screening for mycoflora

(Research group T. Aveling)

No report received as Professor Aveling is on maternity leave.

(Research group of P. Berjak)

Work on the seed-associated mycoflora of the rare desert species, *Welwitschia mirabilis* continues.

B. Methods of fungal eradication prior to storage

(Research group of P. Berjak)

No further development/ submitted reports in this area.

C. Cryopreservation

(Research group of D Mycock)

The effects of imbibition and cryostorage on the cytoskeleton of radicle meristems of *Zea mays* have been documented using electron microscopy and confocal microscopy.

(Research group of E. González-Benito with F. Pérez-García)

The Seed Bank of Universidad Politécnica de Madrid was created 40 years ago by Prof. César Gómez Campo. This Seed Bank has two major collections: wild Brassicaceae and threatened species of the Iberian Peninsula and the Macaronesian region. Germination tests are being carried out during 2005 and 2006 to check seed viability.

In the previous report (June 2006), we informed about the high seed viability of 25 species of Brassicaceae after 38-39 years storage. Seeds were preserved at temperatures between -5° and -10° C in flame-sealed glass vials containing dehydrated (blue) silica gel. In that report it was advanced that germination tests were being carried out in other families to study the response after 30 years storage in similar conditions.

One or two species of each of the following families were tested: Resedaceae, Polygonaceae, Caryophyllaceae, Asteraceae (2 species), Poaceae, Fabaceae (2 species), Boraginaceae, Zygophyllaceae, Rubiaceae, Cistaceae, Lamiaceae and Scrophulariaceae. All the species are endemic to Spain (Iberian Peninsula or Canary or Balearic Islands). Seeds had been stored in the seed bank since 1972-1974.

When possible (enough seeds available) best germination temperature and/or dormancy breaking treatment were studied.

Of the fourteen species tested, nine showed a final germination percentage higher than 90% (in five of them some kind of dormancy breaking treatment was required). Two showed germinations of 75-80% without any pretreatment. After testing different dormancy breaking treatments, another two species showed germinations of ca. 50% (53% and 56%), and one lower (36%). With these three species not enough seeds were available to carry out more dormancy breaking tests; however, in the latter species, it was possible to carry out the tetrazolium test and the viability obtained was 77%.

In four of the species it was possible to measure the moisture content (gravimetric method) and it ranged from 1.0 to 4.7% (fresh weigh basis).

This study shows that the storage of seeds at very low moisture content resulted in high germination percentages after 30years storage not only in Brassicaceae species, but also with a range of different families.

D. Invigoration

No further development/ submitted reports in this area.

E. Other Aspects

No further development/ submitted reports in this area.

## **Working Group 2. Non-Orthodox Seeds**

A. Situation pertaining to mycoflora

(Research group of P. Berjak)

Trials on the effectiveness of several commercially available fungicides (both topical and systemic) on reducing fungal contamination associated with the seeds of numerous recalcitrant seed species are underway.

B. Fungal limitation/eradication

No further development/ submitted reports in this area.

C. Storage

(Research group of P. Berjak)

D. Responses to seed manipulation (including stress)

(Research group of P. Berjak)

The work on determining recalcitrant seed behaviour of numerous African species continues. Examples of species being studied are: *Camellia sinensis*, *Coffea* spp, *Encephalartos* spp, *Protorhus longifolia*, *Trichillia* spp.

(Research group of H. Pritchard)

The work with seeds of several tropical forest species continues. The work is part of a collaborative programme between the laboratories of Prof Pritchard and Dr Sacandé.

### Working Group 3. Development of Methodologies

#### A. Dehydration/rehydration protocols

No further development/ submitted reports in this area.

#### B. Cryoprotocols

*(Research group of P. Berjak)*

Due to both the seasonal nature and poor storability of recalcitrant seeds the use of other vegetative tissues (e.g. axillary buds and somatic embryos) as the propagule for storage are being investigated for numerous species. Examples of the species include: *Barringtonia racemosa*, *Coffea* spp., *Cordia alliodora*, *Garcinia livingstonei*, *Strychnos* spp., and *Theobroma cacao*.

*(Research group of D Mycock)*

The work utilising alternative tissues as the propagule for cryostorage are continuing. Callus, somatic embryos and axillary buds are the tissues under investigation. The species under consideration include several *Eucalyptus* spp and their hybrids, and several South African endangered species (e.g. *Protea* spp.)

#### C. Determination of pre-storage damage in orthodox material

No further development/ submitted reports in this area.

#### D. Other Aspects

*(Research group of P. Berjak)*

Synthetic seed technology is being developed for several recalcitrant seed producing species. The work is also making use of vegetative tissues as the propagule for dissemination.

### Future Aims

An editor is required to drive the process of the production of the Handbook on Seed Storage.

### General

Prof D Mycock is unable to continue as the Chairman of the committee and Prof H Pritchard will take over this position at the ISTA meeting in Brazil.



**PART 1**

**PROGRESS REPORT AND WORKING PROGRAMME UPDATE**

**A Rules Development**

**Introduction of New Species**

	COM	Species	Subject	Proposed finalisation	Collaboration
1	TEZ	<i>Larix, Picea, Brassica</i>	Vegetable, flower, tree seeds yearly 2 species according the questionnaire, 6 species yearly	2007	FST, FTS

**Introduction of Rules Changes**

	TCOM	Subject	Proposed finalisation	Collaboration
1	TEZ	Reorganisation Rules and Annexe, Tab. 6	2006	-

**B Publications**

**Rules accompanying publications**

	COM	Publication title	Proposed finalisation	Collaboration
1	TEZ	Reorganise Handbook Tetrazolium	2007	-
2	TEZ	Continue Working sheets	2006	FST, FTS

**C Workshops and Seminars**

**Training and education workshops**

	COM	Workshop subject	Proposed Date	Region
1	TEZ	TEZ Tree and Shrub	July 2005, finalised in 2005	Karlsruhe, Germany
2	TEZ	Trainingcours of TEZ Testing Vegetable and Agricultural Seed	24 -28 July 2006	Emmerloord The Netherlands

**D Proficiency Tests**

	COM	Proficiency Test Subject	Proposed date	Collaboration
1	TEZ	<i>Secale cereale</i>	July 2005	Finalised in 2005-
2	TEZ	<i>Panicum maximum</i>	February 2007	-
3	TEZ	<i>Medicago sativa</i>	June 2007	-

**E Special Projects**

	TCOM	Project name/subject	Proposed finalisation	Collaboration
1	TEZ	Evaluation of the questionnaire	2006	-

## PART 2

### COMMITTEE MEMBERSHIP LIST

Chair:	1	Stefanie Krämer	Germany
Vice-chair:	2	Ronald Don	United Kingdom
Members:	3	Augusto Martinelli	Argentina
	4	Christofer Wood	United Kingdom
	5	Anny van Pijlen	Netherlands
	6	Valerie Blouin	France
	7	Sharon Davidson	United States
	8	María Belén Aranguren	Argentina
	9	Teresita Farras	Uruguay
	10	Gary Duffy	Ireland
	11	Linda Maile	United Kingdom
	12	Irena Jumburga	Latvia
	13	Jose B. Franca- Neto	Brazil
	14	Izelle Allison	South Africa
	15	Sergio Pasquini	Italy

## PART 4

### B Request list

The Committee has been involved in technical questions raised by ISTA Members and non-members:

Date	Country	Subject
August 2005	Iran	Question about Preparation of Orobanchae spp.
July 2005	Hungary	General Questions about TEZ Testing
March 2005	Italy	Question about Preparation of Citrus spp.



PART 1

PROGRESS REPORT AND WORKING PROGRAMME UPDATE

A Rules Development

Introduction of Rules Changes

	TCOM	Subject	Proposed finalisation	Collaboration
1	VAR	The methods for IEF testing of corn and sunflowers have been adapted for the whole range of varieties, the proposals have been accepted for the rules.	finished In 2006	
2		Further - Activity of the Variety Committee		
	VAR	List of procedures from the German Method Book for inclusion in the ISTA Rules :  - <i>Brassica, Lactuca, Cichorium, Winter-Summer Cereals, Sinapis arvensis in Brassica</i>	Work starts 2007	
	VAR	Improvement in the ISTA Rules: alkaloid test with <i>Lupinus</i>	First Proposal in October 2006	
	VAR	Inclusion of the following methods from the ISTA Handbook into the ISTA Rules:		
		a.) Phenoltest: <i>Oryza sativa, Vicia striata, Poa pratensis</i> b.) Fluorescencetest: <i>Glycine max</i> c.) Tests using Chemical bases: <i>Wheat, Soghum bicoloured Oryza</i> and <i>Oryza</i> varieties, <i>Melilotus</i> spp. d.) Other chemical tests: <i>Glycine, Avena Sinapis arvensis, Lupinus</i> spp. <i>Vicia faba</i> e.) Chromosome number: <i>Ryegrass, Trifolium pratense, Beta vulgaris</i>	Activities are planned in 2007	

B Workshops and Seminars

	COM	Workshop subject	Proposed Date	Region
1	VAR	ISTA/FAO Workshop for Protein and DNA analysis	2006 finished	Turkey
2	VAR	ISTA Workshop :Variety and Hybrid testing with IEF	2006 finished	Germany
3	VAR	ISTA/FAO Workshop for Protein and DNA analysis	2007 April planned	Brazil
4	VAR	Variety Testing ISTA/FAO Protein and DNA	2007 June planned	Africa, Cameroon
5	VAR	Variety Testing ISTA Conventional Methods ( no protein and no DNA )	2008 planned by Dr. Killermann	Germany
6	VAR	Questionnaire: Offer for laboratory training in variety testing at homestation Contribution to the ISTA variety Workshop on IEF in 2007/8 Initiation of Ringtests in variety testing for <i>Triticum, Avena, Pisum</i>	2007-2010  2007/2008  2007	Worldwide

## C Special Projects

	TCOM	Project name/subject	Proposed finalisation	Collaboration
1	VAR	Installation of Working Groups for the specific types of Variety Testing (techniques )	Finished in 2006	Members,see amendment below
2	VAR	Survey on methods to find a. Laboratories that have methods available, b. Methods which are requested urgently	Still in progress Still in progress	
3	VAR	Design of database obtaining all data from the survey.	2007/08 in work	
4	VAR	The database will be available a. via ISTA-website b. through a hardcopy version.	Still in progress	ISTA Secretariat Website first draft elaborated
5	VAR	Run proficiency tests with <i>Triticum</i> , <i>Pisum</i> and <i>Avena</i>	2007	
6	VAR	Integrate a DNA Working Group into the Variety Committee	2007	In progress
7	VAR	Laboratory Training ( LUFA Augustenberg, Germany )	2006	Brazil ( 1 Person)

## PART 2

### COMMITTEE MEMBERSHIP LIST

Chair:	1	Rainer Knoblauch	Germany
Vice-chair:	2	Kae-Kang Hwu	Taiwan
Members:	3	Huw Jones open	United Kingdom
	4	Kalyn Brix-Davis	United States
	5	Emanuela Casarini	Italy
	6	Savitha H. Reddy	India
	7	W. Drost M.Sc	Canada
	8	Jerzy Drzewiecki	Poland
	9	Berta Killermann	Germany
	10	Paul Koranyi	Hungary
	11	Ulf Kjellström	Sweden
	12	Anne Middleton	Canada
	13	Jop Shipper	Netherland
	14	Cheryl Dollard	Canada
	15	David Zhang	France
	16	Sylvain Gregoire	France

Proposed Working Groups, Leaders, Members and Actions:

Working Groups	Leader	Member	Action
1. Fieldtrails	Ulf Kjellström		collecting methods for database and Handbook
2. Conventional Methods - morphological - anatomical - chemical - fluorescent aspects	Jop Shipper		Formulate Rules Proposals And arrange Workshops

3. Electrophoresis PAGE and SDS Isozyme Starch IEF - Acrylamide IEF - Isozyme	Rainer Knoblauch	P. Korany J. Drezewiecki H. Jones B. Killermann Savitha H.	-Design the new Handbook
Proteinanalytik:	<p>Methods for testing species and varieties are available, only validation is missing:</p> <ul style="list-style-type: none"> <li>- Tree species : <i>Abies, Cedrus, Larix, Picea, Pinus, Tilia, Quercus</i></li> <li>- Grasses: <i>Festuca, Lolium, Poa, Agrostis</i></li> <li>- Cereals: <i>Triticum, Avena, Hordeum, Secale, Oryza</i></li> <li>- Vegetables-: <i>Capsicum, Cucumis, Cucurbita, Allium, Apium, Valerianella, Chichorium, Daucus, Asparagus, Lycopersicum, Petroselinum, Pisum, Vicia, Vigna radiata, Ocimum basilicum, Solanum melongena</i></li> <li>- Fodder plants: <i>Beta, Trifolium, Medicago, Brassica, Lupinus</i></li> <li>- Special cultures: <i>Cocos, Carica papaya, Mango, Phaseolus, Silene</i></li> </ul>		
4. DNA- Methods Variety Testing ( not related to the proficiency based approach )	Emanuela Casarini	K.B. Davis Kae-Kang Hwu C.Dollard D.Zhang	Methods development for Variety determination of - <i>Beta</i> - <i>Lycopersicon, Oryza</i> and species determination of <i>Triticum,</i> <i>Brassica</i>
5. Open questions :	<p>Groups of varieties: Summer, winter wheat 2 -4 -6 - line barley Triticale Spelt "hybrid"</p>		
6. Others:	<i>Sinapis alba</i> , with nematode resistance <i>Glycine, Gossypium, Sorghum, Arachis</i>		



## PART 1

## PROGRESS REPORT AND WORKING PROGRAMME UPDATE

## A Rules Development

## Introduction of New Methods

	TCOM	Method name/Subject	Proposed finalisation	Collaboration
1	VIG	Controlled deterioration test for <i>Brassica</i> species	2008	STA

## Introduction of New Species

	COM	Species	Subject	Proposed finalisation	Collaboration
1	VIG	<i>Glycine max</i>	Addition of the species to the Conductivity test	2010	STA
2	VIG	<i>Phaseolus vulgaris</i>	Addition of the species to the Conductivity test	2010	STA
3	VIG	<i>Brassica oleracea</i> var <i>oleifera</i>	Addition of the species to the conductivity test	2010	STA

## B Publications

## Rules accompanying publications

	COM	Publication title	Proposed finalisation	Collaboration
1	VIG	Handbook of Vigour Test Methods 4 <sup>th</sup> Edition	2009	-

## C Workshops and Seminars

## Training and education workshops

	COM	Workshop subject	Proposed Date	Region
1	VIG	Seed Vigour Testing	2006	Angers, France
2	VIG	Seed Vigour Testing	1-3 May 2007	Brazil
3	VIG	Seed Vigour Testing	4-6 September 2007	Izmir, Turkey

## D Proficiency Tests

	COM	Proficiency Test Subject	Proposed date	Collaboration
1	VIG	Conductivity test for <i>Pisum sativum</i>	2005 (round 05-03)	-

## E Special Projects

	TCOM	Project name/subject	Proposed finalisation	Collaboration
1	VIG	Application of assessments of the rate of germination to vigour evaluation (rice, onion, maize)	2007	-
2	VIG	Extension of the application of the accelerated ageing test to maize	2007	-

## PART 2

### COMMITTEE MEMBERSHIP LIST

Chair:	1	Alison A Powell	United Kingdom
Vice-chair:	2	Michael Kruse	Germany
Members:	3	Ernest Asiedu	Ghana
	4	Patricia Brownfield	United States
	5	Emanuela Casarini	Italy
	6	Malavika Dadlani	India
	7	Marie-Helene Wagner	France
	8	Anders Lomholt	Denmark
	9	John Hampton	New Zealand
	10	Seok Hyeon Kim	Korea
	11	Francisco Kryzanowski	Brazil
	12	Gillian McLaren	United Kingdom
	13	Rasha Tamaa	Austria
	14	Dennis M TeKrony	United States
	15	Yan Rong Wang	China

## PART 3

### PROJECT PROGRESS

#### Project: Application of the conductivity test to *Phaseolus vulgaris*

Project leader: Alison A Powell (GB)

Working group members: Emanuela Casarini (IT); John Hampton (NZ); Karen Hill (AUS); Gillian McLaren (GB); Marie-Helene Wagner (FR)

Samples of six seed lots of *Phaseolus vulgaris* were sent to the working group members in June 2005. Each laboratory carried out the test on three separate occasions following the same procedure as the validated test for peas in the ISTA Rules, with 4 replicates of 50 seeds, each soaked in 250 ml water for 24 h at 20°C. The results were returned by late 2005 and analysed in spring 2006.

The data for the replicates of each seed lot tested within each laboratory, and for the mean conductivity for each lot from the five laboratories, were compared on the basis of the tolerance values that have been established for pea in the ISTA Rules. In all cases the replicates within the laboratories and the mean values obtained for each lot in different laboratories were within the tolerance range established for peas. While there are no tolerance values for conductivity readings for *Phaseolus* at this stage, this does indicate that both the repeatability and reproducibility of the test is good for *Phaseolus*.

Two-way analysis of variance was completed for the data. The mean conductivity values for the six lots in the three repeat runs of the test ranged from 27.0  $\mu\text{S cm}^{-1} \text{g}^{-1}$  to 38.3  $\mu\text{S cm}^{-1} \text{g}^{-1}$  in Run 1, 25.5 to 40.2  $\mu\text{S cm}^{-1} \text{g}^{-1}$  in Run 2 and 25.3 to 39.0  $\mu\text{S cm}^{-1} \text{g}^{-1}$  in Run 3. There were clear significant differences between the seed lots in each run and the ranking order of the seed lots was the same in each of the three runs of the test.

Comparison of the means of the three runs for each seed lot from each laboratory further confirmed the differences in readings between the lots. The ranking of the seed lots from low to high vigour was completely consistent between laboratories.

In each run there were small, but significant differences in the overall mean conductivity readings obtained in the five laboratories which was confirmed by the analysis of the overall means. However calculation of the Coefficient of Variation (CV) for the whole experiment gave a value of only 4.3%, indicating that there was very little variability in the data. Indeed, the good repeatability (little variability) within each laboratory, both within and between runs, explained why the small differences in conductivity between laboratories were significant.

**Project: Application of the conductivity test to *Glycine max***

**Project leader: Alison A Powell (GB)**

Preliminary comparisons of the conductivity test will be conducted as part of comparative testing of vigour tests of soyabean in Brazil led by Jose Franca Neto. The difficulties in obtaining a source of seed that can be distributed to a wide range of countries for comparative testing have yet to be overcome.

**Project: Proficiency test for the conductivity test for *Pisum sativum***

**Project leaders: Gillian MacLaren (GB), Alison A Powell (GB)**

This took place as part of the Proficiency testing round 05-3 in October 2005. Three samples of peas have been sent to 31 laboratories. Of these, 22 were ISTA accredited laboratories, 11 being accredited for vigour. Comparisons of the data both within and between laboratories revealed that the replicates within laboratories were all within tolerance, as were the mean values for the lots obtained by the different laboratories. Only one laboratory (not accredited) returned data that was well outside the range of all other data and was excluded from all other analysis. Comparisons of the mean conductivity readings obtained by ISTA labs accredited for vigour, other ISTA accredited labs and non-accredited labs revealed only small differences between them.

The inclusion of more laboratories (30) in the 2<sup>nd</sup> round of testing than the 1<sup>st</sup> round (19) in 2003, meant that it was feasible to consider whether the Z-score method of assessing and rating laboratories could be applied to the conductivity test. The data was therefore analysed using the ISTA programme. The distribution of Z-scores for the 30 laboratories revealed that the distribution of the results was close to normal. The laboratories were subsequently given ratings based on their Z-scores for the 2<sup>nd</sup> proficiency test. The majority of labs had A ratings with only one laboratory in each of the C and BMP categories. Discussions with the Statistics Committee led to the conclusion that the above observations indicated that the Z-score method of rating laboratories could be used for the conductivity test. The results of the 2<sup>nd</sup> Proficiency test have therefore been reported on the basis of their Z-score. The Vigour Committee will continue to monitor the data obtained in proficiency tests to ensure that the data is consistently normally distributed and that this method of reporting is appropriate for

**Project: Application of assessments of the rate of germination to vigour evaluation (rice, onion, maize)**

**Project leader; Malavika Dadlani (IN)**

**Working group members: Emanuela Casarini (IT); Mohammad Khajeh Hosseini (IR); Seok Hyeon Kim (K); Anders Lomholt (DK); Stan Matthews (GB); Marie-Helene Wagner (FR)**

Four groups of seed lots have been compared in the assessment of the rate of germination as a measurement of vigour in maize. (1) In 2005 the rate of germination (Mean Germination Time, MGT) of 13 seed lots was reported as being significantly related to their emergence in soil (SST, 34, 339-347). Further work on the same lots at 20 °C has shown that the MGT of lots and the germination times of individual seeds within lots are significantly negatively correlated with shoot length, suggesting that the source of variation in shoot length was the timing of germination and the duration of the subsequent growth period (SST in press). Thus another aspect of vigour, seedling growth, can be linked to rate of germination. (2) Comparisons of the rate of germination (MGT) of 8 lots of maize at 13°C have been made on UK, Iran and Denmark. This revealed clear differences in seed vigour of the lots that were reflected in field emergence. Repeatability was good both within and between laboratories. (3) MGT of five seed lots determined by image analysis (France) and germination counts (GB) corresponded well and were indicative of field emergence. (4) Currently five laboratories (DK, FR, GB, IR, IT) are comparing a further six seed lots in two test runs at 13°C. The same seed lots are being used in the AA test (see below) for comparison.

**Project: Extension of the accelerating ageing test to maize**

**Project leader: Rasha Tamaa**

**Working group members:** Emanuela Casarini (IT); John Hampton (NZ); Seok Hyeon Kim (K); Marie-Helene Wagner (FR); Gary Cook (US); Alan Galbreth (US); Tim Gutormsen (US)

Twelve samples of maize (2 replicates of each of six lots, randomly numbered) were sent to participants in July 2006. Delays in receipt were encountered in some cases due to customs clearance and in one case a repeat samples had to be sent out due. All laboratories carried out the accelerated ageing test following the same procedure for soyabean in the ISTA Rules, with small modifications for maize suggest in the ISTA Vigour Handbook. The results for all laboratories had been received by November 2006 and are currently being analysed

**Project: Feasibility of a proficiency test for accelerated ageing of Soybean**

**Project leader: Alison A Powell (GB)**

Twenty four ISTA laboratories from 20 countries expressed interest in participating in a proficiency test for accelerated ageing and were asked to complete a questionnaire on the current status of AA testing in their laboratory and the equipment available to them. Only, nine laboratories responded and of these only three had the required equipment. Use of inappropriate equipment is a major source of inaccuracies in the results for the accelerated ageing test, therefore it is not appropriate to carry out a proficiency test for this vigour test at present.

#### **PART 4**

**A Information: Issues of Common Technical Interest**

**B Request list**

The Committee has been involved in technical questions raised by ISTA Members and non-members:

<b>Date</b>	<b>Country</b>	<b>Subject</b>
23. 1. 06	Serbia	Source of equipment for accelerated ageing test
22. 3. 06	Poland	Source of equipment for accelerated ageing test
4. 4. 06	Argentina	Source of equipment for accelerated ageing test
29. 6. 06	USA	Conductivity test: protocol for application to Phaseolus



## PART 1

## PROGRESS REPORT AND WORKING PROGRAMME UPDATE

## A Rules Development

## Introduction of New Methods

	TCOM	Method name/Subject	Proposed finalisation	Collaboration
1	GMO	Rules Chapter for GMO	finalised 2005	-

## B Publications

## Rules accompanying publications

	COM	Publication title	Proposed finalisation	Collaboration
1	GMO	Proceedings	finalised 2004	FAO

## Training publications on specific seed testing topics

	COM	Publication title	Proposed finalisation	Collaboration
1	GMO	Exchange of information on the ISTA Website steadily enhancement	finalised 2006	ISTA Secretariat

## Scientific information publications

	COM	Publication title	Proposed finalisation	Collaboration
1	GMO	Seed calc, enhancement Website	finalised 2005	STA (Seedcalc 7)

## C Workshops and Seminars

## Training and education workshops

	COM	Workshop subject	Proposed date	Region
1	GMO	8 <sup>th</sup> ISTA/FAO Workshop on Varietal Verification and GMO Detection	February 2006	Turkey
2	GMO	Biotech Trait Detection Workshop	May 2006	United States
3	GMO	ISTA GMO Workshop: Methods for Detection and Statistical Aspects	March 2007	Turkey
4	GMO	ISTA Workshop on Statistics Aspects of GMO Detection	May 2007	Turkey

## D Proficiency Tests

	COM	Proficiency Test Subject	Proposed date	Collaboration
1	GMO	1 <sup>st</sup> round in 2006 on <i>Zea mays</i>	2006	ISTA Secretariat
2	GMO	2 <sup>nd</sup> round in 2006 on <i>Glycine max</i>	2006	ISTA Secretariat
3	GMO	1 <sup>st</sup> round in 2007 on <i>Zea mays</i>	2007	ISTA Secretariat

## E Special Projects

	TCOM	Project name/subject	Proposed finalisation	Collaboration
1	GMO	Accreditation Updates	2007	ISTA Secretariat

## PART 2

### COMMITTEE MEMBERSHIP LIST

Chair:	Norbert Leist	Germany
<b>Strategy Working Group</b>		
Chair:	Norbert Leist	Germany
	Michael Kruse	Germany
	Enrico Noli	Italy
	Michael Muschick	ISTA Secretariat
	Bettina Kahlert	ISTA Secretariat
	Bernard Le Buanec	ISF Secretariat
	Doris Dixon	United States
	Michael Ryan	OECD Secretariat
<b>Proficiency Test Working Group</b>		
Chair:	Bettina Kahlert	ISTA Secretariat
	Sylvain Gregoire	France
	Christoph Haldemann	Switzerland
	Kirk Remund	United States
	Jean-Louis Laffont	France
	Quentin Schultz	United States
	Don Cerwick	United States
	Anja Matzk	Germany
<b>Exchange of Information Working Group</b>		
Chair:	Enrico Noli	Italy
	Christoph Haldemann	Switzerland
	David Zhang	France
	Greta de Both	Belgium
<b>Further members</b>		
	Eugenia Barros	South Africa
	Sofia Ben Tahar	France
	Leopold Girsch	Austria
	Lutz Grohmann	Germany
	Timothy J. Gutormson	United States
	Ljubomir Horvath	Slovak Republic
	Benjamin Kaufman	United States
	Nigel John Kilby	Finland
	Berta Killermann	Germany
	Rai Satish	United States
	Brian Savoy	United States
	Sandra Seeman	United States
	Chris Sikolas	Greece
	Michael Star	United States
	David Stimpson	United States
	Ana Laura Vicario	Argentina

## PART 3

### Workshop 'ISTA/FAO Workshop on Varietal Verification and GMO Detection

Working Group: Christoph Haldemann, Rainer Knoblauch, Norbert Leist, Enrico Noli

In 2006, one 'ISTA/FAO Workshop on Electrophoretic Methods and PCR-Techniques for Varietal Verification and GMO Detection was held in Izmir, Turkey, in February.

## ISTA Proficiency Tests on GMO Testing

In 2006, two proficiency tests were carried:

### 7<sup>th</sup> ISTA Proficiency Test on GMO Testing on *Zea mays* L.

For this proficiency test three different maize seed lots were provided: a non GM, a MON863 and a NK603 seed lot. Each participating laboratory received a set of 12 samples each of 2'000 seeds. Four samples were negative (no GM seeds added) and 8 samples were positive: two samples contained 0.4% MON863 seeds, two contained 0.4% NK603 seeds, two contained 0.4% MK863 and 0.4% NK603 seeds and two contained 2.0% NK603 seeds.

Fifty-seven laboratories reported evaluable results. The results of the qualitative testing of this proficiency test showed that for a similar percentage (96.9%) of samples than in previous test rounds a correct classification regarding the presence and absence of GM seeds were reported. The laboratories did not have any problems to detect the MON863 or NK603 seeds in the samples but about 15% laboratories reported false positive results. 76% of the laboratories performed a quantitative test either by sub-sampling quantification or RT PCR and 68% performed an identification of the events contained in positive samples. A detailed summary of the results can be obtained from the ISTA Secretariat.

### 8<sup>th</sup> ISTA Proficiency Test on GMO Testing on *Glycine max* (L.) Merr.

Participating laboratories received 14 soybean samples each of 3'000 seeds. The results of this proficiency test will be submitted in March 2007.

## Information Platform for GM Seed on the ISTA Website

The Information Platform for GM Seed was established in February 2006 on the ISTA Website (<http://www.seedtest.org/en/content---1--1195.html>) to provide useful information to both beginner and experienced laboratories on strictly technical aspects as well as on the ISTA accreditation for this specific analytical field.

The platform includes links to external sources and databases for technical information on the following aspects:

- molecular description, regulatory and trading statuses of transgenic events
- analytical methods for the detection and quantification of specified traits, at different stages of development/validation
- statistical tools, both aimed at assisting laboratories in their routine work as well as in method development and validation
- sources of reference materials for quality control in GMO analysis
- search engines for scientific literature, to retrieve up-to-date literature on GMO methods
- The platform also provides information on ISTA workshops aimed at providing the basic theoretical knowledge and practical expertise involved in GM testing.

Moreover the platform contains the relevant documents illustrating the ISTA view in respect to GM testing, in particular for laboratory accreditation under the performance-based approach (ISTA Accreditation Standard, Principles and Conditions for Accreditation, schemes for Performance Data Evaluation for analytical methods). Lastly detailed reports with results of previous proficiency test on GMO are also available.

## International Representation and Collaboration

The ISTA GMO TF is collaborating with other relevant Organisations and Groups in the area of specified trait testing:

- a.) Collaboration with the European Seed Trade Association (ESA)
- b.) Collaboration with the European Network of GMO Laboratories (ENGL)
- c.) Participation in the Organising Committee of the "First Global Conference on GMO Analysis".

### a.) Collaboration with the European Seed Trade Association (ESA)

The ISTA GMO TF has been invited by the European Seed Trade Association to participate in its Working Group on Analytics. The aim of the working group is to discuss the latest developments in the GMO analysis, evaluate their relevance and consider appropriate analytics for regulative purposes to be discussed with the relevant bodies of the European Community. The ISTA GMO Task Force was represented by Michael Muschick, Secretary General of ISTA, who participated in two meetings of this working group.

b.) Collaboration with the European Network of GMO Laboratories (ENGL)

The ISTA GMO TF and the European Network of GMO Laboratories (ENGL) have organised two meetings, where an active exchange of the current activities of both groups has taken place and actual challenges and possible solutions regarding GM analysis have been discussed. It was obvious that differences in the analysis of seed, food and feed are obvious and evident. The discussions on that topics should continue in the near future and discussions are continuing to come to a more formal collaboration between ISTA and ENGL.

c.) Participation in the Organising Committee of the 'First Global Conference on GMO Analysis'

The ISTA GMO TF has been invited to participate in the organising Committee of the First Global Conference on GMO Analysis. This conference will take place on June 24-27 2008 at the Villa Erba, Como, Italy and should deal with all aspects of GMO analytics in all areas from seed, food and feed. The ISTA Secretary General Michael Muschick is the ISTA representative in that committee. Continuous information and updates regarding that conference can be found on the website <http://gmoglobalconference.jrc.it/>