



International Seed Testing Association

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Document 02-2010-OM

Minutes of the Ordinary Meeting 2009

This document was prepared by the Secretariat of the Association and endorsed by the ISTA Executive Committee to be submitted to the ISTA Ordinary Meeting 2010 for acceptance by the nominated ISTA Designated Members voting on behalf of their respective Government.

It was submitted to all ISTA Designated Authorities, ISTA Members and ISTA Observer Organisations for information two months prior to the ISTA Ordinary Meeting 2010.

It was discussed and accepted by vote at the Ordinary Meeting 2010 held on Tuesday, June 22, 2010 at the Guerzenich Congress Center, Cologne, Germany under Agenda point 4. Reading of Minutes.

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The Ordinary Meeting of the Association

The Ordinary Meeting was opened on Thursday, 18 June, 2009 at 09:00 by the President of ISTA, Ms. Katalin Ertsey who welcomed all participants again, and stated her content with the programme of the annual meeting to date, starting with the successful Seed Analyst Training Workshop held on Sunday, followed by an excellent Purity Seminar on Monday, then the two days during which the Technical Committees presented their valuable activities and achievements of the last 12 months. She also thanked the Secretariat for the organisation of the superb official dinner on the evening before.

At first she welcomed the official representatives present of the observer organisations to ISTA, Mr. Robert Guei from FAO, Mr. Marcel Bruins and Mr. Piero Sismondo from ISF, Mr. Walter De Backer from the EU Commission, Mr. Garlich von Essen from ESA, Mr. Jai Singh from APSA, Mr. Gil Waibel from AOSA/SCST, Ms. Maria Laene Carvalho from ABRATES, and thanked them for coming and invited them to use the information they collect at this meeting in their future work.

Ms. Katalin Ertsey referred to the ISTA Annual Meeting 2008 in Bologna, where the association had decided to go ahead with a lot of different important topics. The time has come to realize them; the documents prepared by the Executive Committee and the Secretariat are ready for vote: Constitution Change Proposals regarding the position of the Second-Vice President; or the Position Paper of the GMO Task Force regarding unit of measurement; and the progress report; and the progress report of rules of testing of seed mixtures. There are other important items for adoption and consideration: the rules changes and the validation reports.

She further highlighted the fact that in the meantime, all effects of the world financial and economical crisis had reached the Association as well, making the work more difficult, and so she could only repeat what she had already stated in her last president's report and her letter to the members regarding the ISTA accreditation system and accreditation fee, that almost all economists all over the world agree on one thing: the financial system cannot continue this way and needs new structures and projects. Sustainable development looks like being one of the most important topics for the society in medium and long term run. And it has a strong link to the agriculture including seed research and seed business. Under this condition it is vital to become more and more professional. The message from the last four days to me is that you support our Association to go ahead in this direction. The idea that ISTA is the central body who provides different kind of services to its members is a misunderstanding. This would require another structure and higher fees. ISTA is its members, the laboratories, personal members, associate members, corporate members, honorary life members and the secretariat. The basis of ISTA's development from its foundation has been the voluntary work provided by its members. Thanks to all their activities, ISTA is now a world wide accepted organisation. Of course the world has changed, and nowadays the financial and legal possibilities are often restricting. The Technical Committees play a distinguished role, they are the backbone of the Association and will remain this in the future as well. But to manage an international organisation on a high international level, and reach a good image and recognition, costs money. The inside support is essential, but not enough. We need bigger budgets and more financial reserves to continue and progress the proficiency test programme, especially in the field of GMO testing, for the revision of the tolerance table and maintenance of the accreditation system. Accreditation fees have not changed over the last 10

years. We urgently need to solve the question of electronic publishing, just remember the questions and requests raised in this regard during the seed analyst workshop two days ago. And for the evaluation of the professional tools of the secretariat.

She asked the delegates to please be aware of the important topics to be discussed during the day, and to make good decisions with respect to the future of ISTA.

Then she explained that it had become a custom at ISTA Annual Meetings to invite a speaker to give a presentation on the regional developments. At this meeting the Secretary General of the European Seed Association (ESA), Mr. Garlich von Essen, had been invited to speak about the development of the seed industry in Europe. In wishing everyone a successful day, she gave the floor to Mr. von Essen. The presentation of Mr. von Essen is published in detail on the ISTA website.

[00:07:01-00:42:55] ESA Presentation; [00:42:55-01:02:15] questions to ESA Presentation; [01:02:20-01:03:55] Coffee break

(1) Call to Order

Agenda of the Ordinary Meeting of the Association

- (1) Call to order
- (2) President's Address
- (3) Roll call of Designated Members entitled to vote
- (4) Reading and acceptance of Minutes
- (5) Report of the Executive Committee
- (6) Report of the Secretary General
- (7) Constitution Changes
- (8) Fixation of annual subscriptions
- (9) Consideration and Adoption of the proposed Rules Changes 2008
- (10) Consideration and Adoption of Reports
- (11) Announcement of the place and date of the next Ordinary Meeting
- (12) Any other business raised by a Member, of which notice in writing has been received by the Secretary General two months prior to the date of the meeting
- (13) Any other business raised by consent of the Executive Committee
- (14) President's closing address
- (15) Adjournment

(2) President's Address

The President of ISTA, Ms. Katalin Ertsey referred to the documents distributed to all ISTA Designated Authorities, ISTA Members and ISTA Observer Organisations for information two months prior to the ISTA Ordinary Meeting according to the ISTA Constitution, as well as published on the ISTA website.

She informed the meeting that all proposals for voting were sent out in due time two months before the Ordinary Meeting and she invited all to give their opinion and to take part in the discussions.

She informed the meeting that under agenda point 13. *Any other business raised by consent of the Executive Committee*, the following additional items would be presented and discussed:

- report from the seed analysts training workshop
- Certificates for parts of lots (request from the Netherlands)
- process of collaboration between the Technical Committees and the Advanced Technologies Committee

in addition to the voting on document *08-2009-OM Final Draft Position Paper on ISTA's view regarding the units for the reporting of quantitative results on adventitious presence of seeds with specified traits in conventional seed lots* as scheduled beforehand. [01:06:28]

(3) Roll Call of Designated Members entitled to vote

The President gave the floor to the Secretary General, Mr. Michael Muschick, for the roll call.

He explained first that the total number of countries entitled to vote during this ordinary meeting is 73. According to the ISTA Constitution, Article X(d), this requires that 29 voting delegates needed to be present in the meeting to reach the quorum, constituting 40%. He explained that before the meeting, the secretariat had checked the credentials of the nominated Designated Members identified on the list of registered participants, and handed out the voting cards to those entitled to vote. The list of voting delegates and the country they represent was presented on the screen. The Secretary General then asked if there were any Designated Members in the room with credentials from their government to vote at this meeting, and who had not received their voting documents. As this was not the case, the voting delegates present were asked to put up their green 'YES' card for a formal counting by the staff members of the secretariat. [01:08:25]

With 42 voting delegates counted in the room, the Secretary General declared the meeting quorate.

Roll Call ISTA Ordinary Meeting 2009 - June 18 – Glattbrugg, Switzerland			
Nr.	ISO Code	Country name	Voting delegate present YES/NO
1	AL	Albania	NO
2	AR	Argentina	YES
3	AT	Austria	YES
4	AU	Australia	YES
5	BA	Bosnia & Herzegovina	NO
6	BD	Bangladesh	NO
7	BE	Belgium	YES
8	BG	Bulgaria	NO
9	BO	Bolivia	YES
10	BR	Brazil	YES
11	BW	Botswana	NO
12	CA	Canada	YES
13	CH	Switzerland	YES
14	CL	Chile	YES
15	CN	China	NO
16	CO	Colombia	NO
17	CY	Cyprus	NO
18	CZ	Czech Republic	YES
19	DE	Germany	YES
20	DK	Denmark	YES
21	EE	Estonia	NO
22	EG	Egypt	YES
23	ES	Spain	YES
24	FI	Finland	YES
25	FR	France	YES
26	GB	United Kingdom	YES
27	GR	Greece	NO
28	HR	Croatia	YES

Nr.	ISO Code	Country name	Voting delegate present YES/NO
29	HU	Hungary	YES
30	IE	Ireland	YES
31	IL	Israel	YES
32	IN	India	YES
33	IR	Iran	YES
34	IT	Italy	YES
35	JP	Japan	YES
36	KE	Kenya	YES
37	KG	Kyrgyzstan	NO
38	KR	Korea Republic of	YES
39	LK	Sri Lanka	NO
40	LT	Lithuania	NO
41	LU	Luxemburg	NO
42	LV	Latvia	YES
43	MD	Moldova	NO
44	MW	Malawi	NO
45	MX	Mexico	YES
46	NL	The Netherlands	YES
47	NO	Norway	YES
48	NP	Nepal	NO
49	NZ	New Zealand	YES
50	PH	The Philippines	YES
51	PK	Pakistan	NO
52	PL	Poland	NO
53	PT	Portugal	NO
54	RO	Romania	NO
55	RS	Serbia	YES
56	RU	Russia	YES
57	SE	Sweden	YES
58	SI	Slovenia	NO
59	SK	Slovakian Republic	YES
60	SY	Syrian Arab Republic	NO
61	TH	Thailand	NO
62	TN	Tunisia	NO
63	TR	Turkey	NO
64	TW	Separate Customs Territory of Taiwan, Penghu, Kinmen and Matsu	YES
65	TZ	Tanzania	NO
66	UA	Ukraine	NO
67	UG	Uganda	NO
68	US	United States	YES
69	UY	Uruguay	NO
70	VN	Vietnam	NO
71	ZA	South Africa	YES
72	ZM	Zambia	YES
73	ZW	Zimbabwe	YES
73	73	73	42

[01:09:12]

The Secretary General nominated Ms. Anny van Pijlen from the Netherlands and Ms. Anne Bülow-Olsen from Denmark as tellers to count votes. The nominated persons were then adopted as vote counters for the ordinary meeting by vote.

The Secretary General gave clarification regarding the voting procedure as determined by the Executive Committee:

- According to Article IX(b) of the ISTA Constitution, the following categories of motions require a two thirds majority of those voting: motions to alter the Constitution; motions to dissolve the Association; and motions arising during the meeting and relating to temporary adjournment, closing of debate or postponement of action. All other motions require a simple majority of those voting.

- A majority will at all times be based on those actually voting on any motion, and not on those eligible to vote;
- The number deemed to be voting is the sum of the 'yes' and the 'no' votes. An abstention is a decision not to vote and therefore has no effect on the calculation of votes.
- The required majority, two third or simple, is calculated from the number of those voting. The actual number required for a two third majority may therefore differ for each motion.
- For simple majority voting at Ordinary Meetings of the Association the votes will not be counted if a clear majority of either 'yes' or 'no' cards can be identified by viewing the audience. However, vote counts will be made in such a case if there is request from a member or on request of the President.
- With the right to vote goes the right to abstain from voting, but there will not be any call for abstentions. [01:11:47]

He then made sure there were no open questions from the audience.

He then continued to give an overview on the programme of the ordinary meeting:

- there would not be any elections during this ordinary meeting
- motions to alter the Constitution, motions to dissolve the Association, and motions arising during the ordinary meeting and relating to temporary adjournment, closing of debate or closing, or postponement of action require for adoption a two-thirds majority of those voting.
- All other motions require a simple majority of those voting for adoption.
- following the rules of order, delegates wanting to make a motion should raise both the green YES and the red NO voting cards.
- The rules of order for ordinary meetings were adopted by the voting delegates at the ordinary meeting of the Congress 2007. These rules of order apply for this ordinary meeting 2009.
- Delegates and interested persons who are not familiar with these rules of order can get a copy from the secretariat.

The Secretary General thanked the audience for their attention and concluded the roll call. [01:13:15]

(4) Reading and Acceptance of Minutes

The President informed the meeting that the minutes of the last Ordinary Meeting of the Association held in Brazil, were published by the Secretariat as document '02-2009-OM Draft Minutes of the ISTA Ordinary Meeting 2008'. As requested in the Constitution, the document had been distributed to all ISTA Designated Authorities, ISTA Members and ISTA Observer Organisations for information two months prior to the ISTA Ordinary Meeting, and was available on the ISTA website as of March 2009.

The President made sure there were no unanswered questions left and then asked for acceptance of the minutes by applause. [01:14:28]

(5) Report of the Executive Committee

The President of the Association reminded the participants that the report of the Executive Committee had been published by the Secretariat on page 5-8 of the document '03-2009-OM Activity Report of the ISTA Committees 2008'. As requested in the Constitution, the document had been distributed to all ISTA Designated Authorities, ISTA Members and ISTA Observer Organisations for information two months prior to the ISTA Ordinary Meeting, and was available on the ISTA website as of March 2009.

The Executive Committee is composed of the following persons:

Office bearers:

Katalin Ertsey, Hungary (President)
John Hampton, New Zealand (First Vice-President)
Udo von Kröcher, Germany (Second Vice-President)

Members-at-Large:

Mary Chipili, Zambia
Jorge Rosales King, Bolivia
Joël Léchappé, France
Susan Maxon, United States
Alison Powell, United Kingdom
Masatoshi Sato, Japan
Grethe Tarp, Denmark
Rita Zecchinelli, Italy

The President reported that the Executive Committee members met at two occasions, first at the premises of the secretariat in Switzerland, February 11-14, 2008 and during the Annual Meeting 2008 on June 15 and 20 in Bologna, Italy. Furthermore, the President and the Secretary General met on December 12 at the President's institute in Budapest.

She then reported that in the year 2008, 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 an international ISTA Seed Analyst Training Programme;
- clarifications of processes and responsibilities of the Association
- publication and marketing strategies for the ISTA Rules
- organisation of the 2nd World Seed Conference
- work on the ISTA Strategy 2010 -2013

Proposals for discussions within the Executive Committee were drafted by the ISTA Secretariat and the six Working Groups of the Executive Committee:

- Working Group on Accreditation
- Working Group on Certificates
- Working Group on the updating of the Constitution and By-Laws
- Working Group on Meetings
- Working Group on Tropical Seeds
- Working Group on Training & Education

and six ECOM/TCOM Working Groups:

- Working Group on TCOM Enhancement
- Working Group on Seed Science
- Working Group on Publications
- Working Group on Workshops
- Working Group on Seed Treatment Definition (newly formed in June 2008)
- Method Validation Advisory Group

An overall interest of the Executive Committee is ISTA's interaction with other important international organizations in the area of seed. It is essential for ISTA to provide relevant information to other organizations and to represent the interests of its members at meetings with these organisations.

She referred to the table in the document giving an overview of the meetings with ISTA participation (ECOM members or the Secretary General) in 2008.

The President made sure there were no unanswered questions left. The report was then accepted by applause. [01:19:35]

(6) Report of the Secretary General

The Secretary General, Mr. Michael Muschick, presented his report which had been published by the Secretariat on pages 9-14, 18-32 and 36-42 of the document *'03-2009-OM Activity Report of the ISTA Committees 2008'*. As requested in the Constitution, the document had been distributed to all ISTA Designated Authorities, ISTA Members and ISTA Observer Organisations for information two months prior to the ISTA Ordinary Meeting, and was available on the ISTA website as of March 2009.

The Secretary General's presentation is published in detail on the ISTA website.

The first slide gave an overview on the structure of ISTA. He identified three different categories; the Association itself, the services it is providing and the finances.

The Association is the members of the Association on one side, with all its different membership categories: the member countries, which according to the Constitution execute the voting rights, each government is nominating a specialist in the area of seed science/seed technology/seed testing to execute the voting rights at ordinary meetings of the Association; then there are the member laboratories, which do the seed testing, which get accredited, which are issuing the ISTA Certificates; we have personal members which support the aims of the Association, and with the right of a personal member, there goes the right to receive a nomination from the country to act as a voting delegate; the associate membership should be particularly interesting for seed scientists, seed analysts and other supporters of the Association, this category does not have the option of voting rights; corporate membership has been created for institutions or persons who would like to financially support the Association; last but not least the category of honorary life members, with personalities who have been honoured for putting extraordinary efforts to the Association. [01:23:35]

Within this category are certain bodies that are doing the work within the Association: the Executive Committee in managing and directing all the affairs of the Association; a big number of Technical Committees doing the technical

work on international level and bringing their expertise into the Association; a Task Force dealing with GMO testing; the Board for *Seed Science & Technology*, a group of high ranking scientists reviewing papers under the management under the Chief Editor of the journal; and advisory groups. [01:24:57]

The development over the recent years for the membership is positive with slight increases and an overall very stable situation for member countries and all important seed exporting or importing countries are represented. Member countries come from all parts of the world, some parts have a higher number of countries representing them than others. Africa is an area that is still not represented very well. [01:27:01]

A positive tendency can be noted in the development of the number of member laboratories. This number has increased from 178 in 2007 to 182 for 2008, with a majority of governmental laboratories. The number of accredited laboratories remained stable at 58% even with a slight increase in the member laboratories. The question remains for what reason of 42% of the member laboratories are not accredited. [01:30:29]

The number of personal members showed an increase from 51 in 2007 to 56 in 2008 and the number of Associate Members has increased from 22 to 27 persons.

The Secretary General provided information on the working groups of the Executive Committee and on the joint working groups of the Executive Committee and explained their functions and responsibilities. [01:37:45]

For the Technical Committees he made reference to their presentations during the past two days and suggested what a wide range of fields and activity areas the Association is covering through these.

He then reminded that there were so many other organisations dealing with seed in one or the other way, and how important it is for ISTA to closely collaborate with its many international partners listed, be they governmental or private, international or regional. The secretariat as possible tries to keep the relation to all these partners, but their number, range and amount of meetings is increasing constantly, so that in the long term they cannot all be covered by the Secretariat, but ways how this should be dealt with e.g. to spread the duties and workload within the Association or by strictly prioritising, will have to be discussed. [01:40:10]

The Secretary General continued in showing the extensive list of all the meetings that the Association had been represented in either by the Presidents, members of the Executive Committee, Technical Committee Chairpersons or himself.

He continued with the next major item: the services provided by the Association. On one hand ISTA is providing services to its member laboratories, but also to the general public, as the services ISTA is providing are not only restricted to members. Any interested person can purchase the ISTA Rules and handbooks, the journal *Seed Science and Technology*, the magazine *Seed Testing International* is freely distributed to anyone interested. The groups he referred to as the services ISTA is providing were the ones of the *Quality Assurance System*, *Method Development*, *Seed Science*, *Training and Education* and the *Publishing House*. Under *Quality Assurance System*, three major subgroups can be identified: the *ISTA Proficiency Test*, the *ISTA Audit System* and the *ISTA Certificates*. The Secretary General gave an overview on different figures and achievements that could be accomplished within these service groups. He specially thanked the Chair of the Proficiency

Test Committee and the Proficiency Test leaders for their valuable work and the Seed Health Committee for achieving to set up international proficiency tests for seed health. He also thanked the ISTA Auditors for their commitment and performance, specially considering that all the audits, currently a 106 laboratories in total, are performed by a small number of persons only, namely 10 Technical Auditors and 2 System Auditors only, all travelling economy class for performing these audits throughout the world. [01:45:15]

The Certificates remain an important tool to facilitate the international seed trade. As per decision in 2007, only two types of ISTA Certificates are on the market: the ISTA blue sample certificate and the ISTA orange lot certificate. The sale of certificates remained stable at about 120'000 certificates sold by the Secretariat to ISTA accredited laboratories per year, with a clearly higher sale for the orange certificate, however, with a steadily increasing sale of the blue one. [01:46:30]

With regards to *Method Development*, the Secretary General referred to all the presentations and discussions during the past two days of Technical Committee presentations and of the proposed changes to the *International Rules for Seed Testing* that was up for vote at this meeting, to elucidate how big and active work in this area is.

The Secretary General gave some information about the diversity of request that the Secretariat received from different organisations, companies, associations, etc. There is a great demand for, and high expectations of the services provided by ISTA, for example the revision and extension of tolerance tables; the revision of the annotated list of seed-borne diseases; the request for sample sizes for seed health testing methods/phytosanitary measures but also in general; the definition of treated seed in seed health testing; the request for ISTA rules on seed mixtures; for ISTA rules on automatic sampling; requests for guidance from ISTA as to what is the unit of measurement for threshold level on AP for GM seeds; the request to ISTA to provide reference material for GM testing; request for ISTA rules for Orobanche identification, etc. All these requests are of vital importance, but are difficult and huge projects with major investments of resources required. Any help or suggestions on how to proceed with any of these projects are more than welcome. Other requests that the ISTA Secretariat sees itself more and more confronted with is for consultancy for becoming an ISTA accredited laboratory and consultancy, particularly from the Africa region, on how to set up/design a seed testing laboratory, what equipment and facilities are needed, what test etc. For the latter one, a publication is available, which however would be needing a revision, having been published well over 20 years ago. [01:51:16]

In closing this area, the Secretary General listed the experiment on the lot size for herbage seeds that ISTA is currently running.

With regards to *Seed Science*, the Secretary General referred to the two major tools of the Association: the scientific journal of the Association '*Seed Science and Technology*' and the *ISTA Seed Symposia*.

Despite the important expansion of the journal to make it available electronically, the number of sold subscriptions worldwide decreased. If considering that not enough resources are provided in the area of seed science, not enough institutes and faculties are dealing with seed science and in particular applied seed science and seed technology, it is only a consequence that the number of subscribers for a corresponding journal is going down. Seed science is not a self-evident truth, it needs investments on the national level. It is vital to have faculties and universities with Professors for this area. Nevertheless, financially seen for the Association, the reduction

in the income from the journal could be compensated by cost savings in the expenses for the production of the journal. [01:53:51]

For the ISTA Seed Symposia, our other tool in seed science, the symposium convenor is Alison Powell for the seed symposium to be held at the ISTA Congress in 2010 in Cologne. The first call for papers was sent out in October 2008 and a second call will be released in April 2009, with a deadline for submission of papers by July 15, 2009. [01:54:35]

In the area of training and education, the participants already discussed this item a lot during the Seed Analyst Training Workshop; in his talk however the Secretary General presented an overview on the impressive number of workshops held in 2008 in different parts of the world: Africa, Asia, South America and Europe, covering almost all continents. He thanked the Technical Committee Chairs and especially some persons that are very active in helping to make these workshops possible very successfully, and passed on the appreciation and positive feedback that he keeps receiving on ISTA workshops. [01:55:41]

As to the publishing house of ISTA, the most important publication is the *International Rules for Seed Testing* (ISTA Rules). The number of sets of ISTA Rules and amendments to the Rules sold are more or less stable from year to year, with 444 for 2008. However, the number of ISTA handbooks sold fluctuates; in years where new handbooks are published the number sold is normally very high. Although two new publications were released in 2008, a handbook on moisture determination and one on flower seed testing, the sales figures for 2008 were significantly lower than for 2007. [01:57:35]

The magazine *Seed Testing International* is released in two issues a year, and is a tool for the Association to spread information about the developments within the Association, seed science and technology, the seed trade and the seed world in general. The magazine is dispatched to over 2000 subscribers, which is a lot considering the fact that ISTA has just below 200 member laboratories. He suggested that it would be important for the Association to motivate these readers to become more active and more involved in ISTA. [01:58:50]

Before considering the finances of the Association, the Secretary General asked for approval of this first part of the report of the Secretary General, which was fulfilled by the delegates. [01:59:24]

The Secretary General continued with the second part of his presentation by going into the finances of the Association. He firstly explained that the financial figures for 2006 and 2007 that had been distributed with the Activity Report 2008 contained an error, as to the grouping of the expenses listed. He showed the correct figures and read out and presented a letter of apology from the financial auditors of BDO Visura, who were held responsible for reporting the figures wrongly. [02:01:52]

After apologising for the inaccuracy, the Secretary General concluded that the turnover of the Association was stable at just over 2 million of Swiss Francs CHF. On the income side, most of the accounts are in accordance with the budgeted figures. He explained that the extraordinary losses on subscriptions were coming from member laboratories who's membership had to be terminated due to outstanding membership fees. On the other hand, extraordinary income on subscriptions come from such former member laboratories that have to pay their outstanding dues before they can regain their membership with ISTA. It can be observed that in comparison to 2006, the losses the expected income from membership fees increased considerably. [02:03:24]

The Secretary General then asked if there were any questions on the income of the accounts for 2008. The US delegate, Susan Maxon, asked how these increasing extraordinary losses on subscriptions would be addressed by the budgets for next year. The Secretary General suggested that the budgets for 2009 would be discussed after the accounts 2008, however, if a laboratory decides not to pay its membership fees, it is not an easy situation for the Association, however, to take any litigation action did not seem appropriate until now, but the Secretariat constantly sends reminders, phones the laboratories to try to find a solution together with the laboratory to solve the situation. However, unfortunately this is not always possible, in which case it only remains suspend services and in the end to terminating its membership; for the bookkeeping, the outstanding fees have to be shown as an extraordinary loss. [02:05:30]

Susan Maxon repeated that her question was more related to how it can continue for several years to go that way. The Secretary General agreed that it is an important question, which needs to be discussed, even if not under this current agenda point which concerns the financial accounts for 2008. He suggested this discussion would be taken up under the agenda point (8) *Fixation of annual subscriptions*.

There were no more questions, so he continued on the expenditure side of the accounts 2008. [02:06:44]

Also on the expenditure side, most of the accounts are in accordance with the budgeted figures, with only one major exception: the accounts of the direct costs of the Technical Committees, which increased tremendously. It is vital to do the utmost to financially support and address the needs of the Technical Committees. According to the policy of ISTA we should not do this.

The Secretary General then asked if there were any questions on the expenditure side of the accounts for 2008. [02:08:20]

The overall result for the Association in 2008 was positive, even if only just.

No questions were asked and the Secretary General continued with the balance sheet for 2008, reflecting the finances of the Association as per December 31, 2008. He drew the attention of the delegates to the figures of the Securities under Financial Assets and pointed out that the financial reserves of ISTA at the moment lay at Swiss Francs CHF 244 649.00, whereas the annual turnover is around Swiss Francs CHF 2 000 000.00, making it approximately 10% of financial reserves. He then asked what policy the Association has with regards to its financial reserves. In the nineties of the twentieth century, one of ISTA's Executive Committees suggested that the Association should have at least 100% of financial reserves. This policy is also followed by many other international organisations. With only 10% financial reserves, ISTA must be classified as one of the worst situated organisations in this regard. This again means that the financial risk to run this Association is extremely high. If for whatever reason a group of members decide not to pay their membership fees, would cause a serious problem for the Association. The financial risk is carried by the Executive Committee and himself as Secretary General, and that in his opinion the financial risks for the Association must be considered as being too high. [02:11:15]

He asked for questions related to the balance sheet as per December 31, 2008.

The Secretary General informed that the statutory auditors of BDO Visura had conducted a limited statutory examination on the accounting records and the financial statements 2008 of the Association on January 22, 2009. The letter

of the auditors, which was presented to the voting delegates, confirmed that on the basis of their examination, nothing had come to their attention that caused them to believe that the financial statements do not comply with Swiss law and the articles of the Association. [02:12:20]

The Secretary General asked if there was a motion for a formal vote on the approval of the financial report on the accounts 2008. The US delegate, Susan Maxon interrupted the process requesting that a hard copy print out of the correct figures for the accounts would be issued. This was agreed and corrected paper prints had been prepared for the delegates, but it was also made clear again that the incorrect figures referred to were only concerning the accounts of the years 2007 and 2006, whereas for the accounts of 2008 all figures are correct as shown in the report distributed to the members two months prior to the meeting.

The Secretary General repeated his question if there was a motion for a formal vote on the accounts 2008. As it was not the case, the Secretary General asked for approval of the financial report 2008 by applause, and thanked the delegates for their acceptance after receiving their applause and concluded his report. [02:13:47]

The Secretary General asked for motion to keep BDO Visura as statutory auditor. A motion was received and seconded and the voting delegates approved the re-appointment of BDO Visura as auditor for ISTA by showing their green voting cards. No red card was shown.

(7) Constitution Changes

The President, Ms. Katalin Ertsey referred to the document 07-2009-OM Constitution Change Proposals 2009 which was prepared by the Secretariat, endorsed by the Executive Committee and distributed to all ISTA Designated Authorities, ISTA Members and ISTA Observer Organisations for information two months prior to the ISTA Ordinary Meeting according to the ISTA Constitution, as well as published on the ISTA website.

The President then invited the First Vice-President, John Hampton, to chair this agenda point.

The First Vice-President opened in reiterating that the background of this proposal were presented to the Ordinary Meeting of the Association last year in Bologna, Italy, and that this was the only proposal for a constitution change this year. The proposal is suggesting the removal of the position of a Second Vice-President from the Association. Although the position of the Second Vice-President in the Association had been a long lasting one, it has been rather unique, and it has been the only position where the incumbent has not been elected by the membership but appointed because of the fact that the next Congress will be held in the country from which the Second Vice-President came, and one of the prime purposes of that position was that the Second Vice-President could be the link between the organising committee of the congress and the Executive Committee of ISTA. The Second Vice-President had three prime responsibilities:

1. Organisation of the Congress in his country
2. He or she is an officer of ISTA. The officers of ISTA currently are the President, the First- and the Second Vice-President, and they are involved in the day-to-day running of the Association, and at occasion representing ISTA at various international meetings

3. Under the Constitution, if for some reason the President and the First Vice-President were both unable to take up their positions, then the Second Vice-President would continue as the President. So in theory we could have someone who has been not elected to the position as taking over as President of the Association.

Situations have changed as time has gone on, and increasingly we have had the situation where the Second Vice-President has not previously been involved very heavily with ISTA and its affairs, and is often in disadvantage because of that, for the reason that as a member of the Executive Committee, the person is expected to come to Executive Committee meetings, to get involved in the discussion, possibly with little background. [02:19:07]

The Executive Committee has therefore discussed the idea, as it was already presented to the Ordinary Meeting last year, to remove the position of Second Vice-President from the Constitution, but do not remove the fact that someone representing the organising committee of the next congress would still have an involvement within the Executive Committee.

So the proposal is that the position be discontinued, but the number of Executive Committee members would not change because the person representing the organising country for the Congress would join the Executive Committee as a member-at-large.

After having explained the proposal, he asked if there were any questions. [02:20:33]

Mr. Norbert Leist, Honorary Life Member asked for the floor to state that it is an old tradition to have a Second Vice-President. He gave for consideration that the Second Vice-President has the responsibility to organise the next Congress, which is not an easy task because he or she discussions and consultancies with many governmental representatives, and in his opinion, the person would be in a much weaker position at such discussions being a member-at-large only instead of being a Vice-President. He would therefore suggest to hold on to the position of Second Vice-President, but suggested to change it so that if the President or the First Vice-President are unable to continue with their positions, instead of the Second Vice-President a member-at-large would then become President. [02:22:06]

The First Vice-President answered that many of the traditional duties of the Second Vice-President nowadays are handled by the Secretary General, so that there is still a very official, high level connection between the host country and their officials, and the Executive Committee.

The President reminded that she had been in the position of the Second Vice-President to organise the ISTA Congress 2004 in Hungary, and she explained that to be come selected as host country, an official invitation has to be issued by the government and it means that the member who is responsible for organising the congress is also nominated and authorised from its government to do so and therefore has the support of the country. [02:24:47]

The Second Vice-President, Mr. Udo von Kröcher confirmed from his experience that it was sometimes difficult for him to follow all the detail discussions in the Executive Committee as he is involved in seed issues but not seed testing in particular. He further explained that the Executive Committee had elaborated different options and finally came to the conclusion as suggested in the constitution change proposal up for voting. This decision would in his opinion not have any influence on the practice it does not change anything on national level, because that person will still have the position of chairman of the national organising committee.

John Hampton thanked for the comments. He then came back to the point what would happen if the President or the First Vice-President were unable to continue with their positions and explained that according to the current constitution, the Executive Committee has the power to appoint someone to stand in as acting President until there is chance to have a new election. [02:26:41]

As there were no more questions, the President asked if there was a motion to go ahead with the vote on the proposal for the constitution change as laid down in document *07-2009-OM Constitution Change Proposals 2009*. There was a motion and the motion was seconded to go ahead with the vote. The Secretary General repeated that to change the Constitution, a two third majority of those voting was required. He then asked the voting delegates to raise their green YES cards if they were in favour of the proposal to change the constitution as proposed. The Secretary General then announced that the official vote counters counted 35 votes in favour of the proposal. [02:30:30] He then asked the voting delegates against the proposal to raise their red NO cards. There were 2 votes registered not in favour of the proposal. The Secretary General therefore declared the proposal as adopted.

(8) Fixation of Annual Subscription Fees

The President explained that the following issues would be discussed under this agenda point:

- Presentation on the Accreditation Fee
- Fixation of Annual Subscription Fees
- Budget 2009
- Preliminary Budget 2010

Presentation on the Accreditation Fee

The President referred to the letter that had been sent to all members explaining the situation regarding the accreditation fee and that she would like to highlight some important points: the number of ISTA accredited laboratories has increased over the last ten years; the ISTA proficiency test showed that the performance of ISTA accredited laboratories is superior to the performance of non-accredited laboratories; the competence of the ISTA auditors, who all have an extensive background in seed testing and in managing seed testing laboratories, is highly appreciated and recognized by the laboratories; the cost benefit ratio for the ISTA accreditation system is good and the cost for the ISTA accreditation is lower than the costs for a comparable national accreditation in a number of countries.

The Executive Committee has, therefore, come to the conclusion that today the ISTA Accreditation Programme is one of the most outstanding services of the Association and an important pillar of the Association.

The audit programme from the beginning was offered by the Association as a service against payment. The financial policy foresaw that the fees for the audits should cover the costs arising from the service rendered. For the last 10 years, the audit fee remained unchanged while costs in all areas increased. Consequently, after reviewing the finances it became evident, that currently the income from the audit fees is no longer covering the costs the service is producing. This situation needs to be changed if the sustainability of the system is to be assured. For the sake of the whole Association the audit system must be fully cost recoverable.

Therefore, the Executive Committee has decided to increase the audit fees from currently Swiss Francs CHF 10'000.- per triennium to CHF 13'000.-. The amendment will come into force as of January 1st, 2010.

The President said that this was for information and the floor was open for discussion.

The delegate from Bolivia, Mr. Jorge Rosales, stated that the Latin-American countries do not agree with this increase, because it is too expensive and not the right moment to increase the audit fees. [02:37:29]

The delegate from Zambia, Ms. Mable Simwanza agreed with the previous statement and added that the increase would be deterring some countries in participating in ISTA, because the fees are already high and it is really difficult for some of the countries, Zambia in particular to convince the government to pay the present fees, not to mention if the fees are to be increased.

The delegate from Israel, Ms. Lea Mazor, asked if the figures could be shown that would give reason raise the fees. And if possible, if there was really a need to raise the fees, then could they be spread over a period, e.g. 1000.- next year and another 1000.- the year after etc.

The Secretary General answered that as explained in the letter, the accreditation is not cost covering. The basic is that the costs must be covered. If this cannot be secured, it means to be out of any economic sense. Because not being able to cover the costs a service is causing means that the service cannot be sustained. What is for discussion is not if we have a good system and can we make it better, the discussion is about having a system or not having one. [02:39:38]

Ms. Lea Mazor in that case asked for figures on how much money it costs and how much money is coming back.

The President asked the Secretary General to give a presentation on the accreditation figures. Before that she repeated that according to the constitution, the decision on the accreditation fees is with the Executive Committee, still it was a wish of the Executive Committee to have the acceptance of the membership. But if the decision is to continue with the accreditation system, it is clear that it has to be cost covering.

The first comment of the Secretary General was that the ISTA Secretariat is not running an internal operations accounting, simply because of lack of resources available. All financial figures available are published in the financial report in the annual activity reports. For the bookkeeping of the Association there is a 30% position only, as part of the additional workload of one person at the Secretariat, although the whole accounting is becoming more and more intensive and complex, and the workload is far too much which can be identified also in the amount of overtime that is done by the Secretariat staff. Therefore the financial information he would be able to present here was limited.

He continued in explaining the financial policy for the accreditation system, as decided in 1999 and unchanged since then:

- there is a flat rate for all participating laboratories
- the flat rate fee needs to be paid every third year in conjunction with the ISTA audit.
- an additional annual administration fee is raised to cover the costs of the expenditures in the same period
- the system needs to run cost covering

He then started to list the positions on the expenses side:

1. International representation and collaboration (e.g. ISO, ILAC)
2. Human resource management
In the year 2008, both System Auditors resigned from their positions. That was a low point for the accreditation department as the resources had to be fully refilled within short time.
3. Office rent, office equipment, webpage costs, web maintenance
This task has been added to the Secretariat staff in addition to their other duties, there is no resource person for this.
4. Financial management, accounting and bookkeeping, administration
5. Marketing
Answering questions about accreditation and how to become accredited, how to set up a QA system, preparation of hand-out information and information pamphlets for marketing purposes.
6. Travel costs audits (for technical and system auditors)
7. Fees Technical auditors
8. Salaries (40% of the total staff of the Secretariat is working for the Accreditation Department)
9. Proficiency Tests (excluding GMO proficiency tests)
10. Participation fees to other international Accreditation Bodies

The Secretary General added to explain that whereas positions 1.-5. were costs covered by the annual fee for accreditation, and only positions 6.-10. were costs covered by the audit fees.

He then presented the following figures, emphasizing that the figures had to be compared in a three-year period, because it takes three years for all laboratories to go through one audit:

	2004-2006	2007-2009	
	Swiss Francs CHF	Swiss Francs CHF	Difference in %
Total Income Audit Fees	1 014 593	1 135 270	11.89%
Total Expenditure Audits	1 256 662	1 355 211	7.84%
Profit /Loss	-242 070	-219 941	
Number of Audits performed	101	113	11.88%

The Secretary General also stated that the figures for 2009 had to be estimated since the year is only half over, but most likely the Accreditation Department would come to a loss of at least CHF 200'000.-.

He concluded that these were the figures he could present and asked if these would answer the questions raised. [02:51:50]

The delegate from Australia, Mr. Lindsay Cook, stated that the concern was the extent of the increase to be faced in a single proposal. If the activity is not meeting its cost, then there are two options. One is to reducing costs and the other is to increase the fees, and that most organisations would be doing a combination of both. He was wondering if the Executive Committee has been able to look at possibilities of reducing the costs in this area, rather than simply increasing the fees.

The President assured that during the past ten years, everything possible had been done to reduce the costs.

The delegate from the United States, Ms. Susan Maxon, put in the picture that the increase over 30% in one year would be difficult for the laboratories that are planning to have an audit in 2010, because the time for adjustment in that case would be very limited. The fees that her department is charging for service testing a fee increase involves a change in regulation for the companies that we do service testing for. Also she raised concerns that it will discourage rather than encourage even the existing ISTA laboratories that potentially could move into becoming accredited. This increase could be very daunting and they may consider against accreditation with ISTA. She found it very concerning to have this increase in one single year and questioned if there could be other options also. [02:54:36]

The Secretary General asked for approval to speak in behalf of the Executive Committee. Firstly answering if it was possible to cut costs: already two years ago there were discussions in the Executive Committee to see whether cost could be cut, with the outcome that this is not possible without reducing services. For example, the costs for flights, unfortunately there is no possibility to influence these prices other than booking as early as possible to get the best price which is already common procedure. Then salary costs. Are the salaries paid market common salaries? Are the salaries higher or lower than the common market positions? Intensive studies have been made to allocate what is a market common salary, only to find out that the salaries paid are already are below common market positions, and the Secretary General judges the Association to be very privileged to have people that accept working for the Secretariat under these circumstances. The fees for the Technical Auditors, which is another cost position. The Secretary General confirmed that already today he was facing discussions with institutions who provide the Technical Auditors, claiming that the fees paid by ISTA are too low. Again, the Secretary General declared the Association should be very thankful to those institutions for providing these Technical Auditors even for this low fees. Lastly the office costs. The Secretariat has already selected an office environment as cheaply as possible. With staff travelling around 20 times a year, it is vital for the Accreditation Department including the Secretariat to be in the vicinity of an international airport. The surroundings of international airports are naturally not the cheapest ones. Last but not least the Secretary General explained that for all the audits, even if long distance, only economy seats are booked. This fact needs to be considered as an additional challenge to the job of the auditors, especially keeping in mind the amount of travel performed annually. Again, the Secretary General suggested that the Association should be very thankful to the auditors for taking on this additional inconvenience to their already challenging work, in order to save costs for the members.

In conclusion, the Secretary General left it to the members to decide, whether they think that cost cuttings would still be possible, but the opinion of the Executive Committee and the Secretariat certainly is that the working conditions already are very harsh and that there is no potential for any additional cost savings. [02:59:21]

As to the comment from Susan Maxon saying that the increase is high, the Secretary General agreed to this comment, and that for some laboratories scheduled for audit next year it may be difficult. But he also emphasized that this increase was not to enhance the accreditation system, but to make sure the current system can be sustained.

The delegate from the Netherlands, Mr. Joost van der Burg, stated that he largely agrees with the statements of the Secretary General and supports him in that. As a Technical Auditor for ISTA himself, he informed the audience that he had sent a letter to the Secretary General a few weeks ago with suggestions on how costs could be reduced by reducing the frequency of the audit activities, for instance if for several audits the performance had been good, then it was perhaps not necessary to have the audit performed by a System Auditor and a Technical Auditor, but it would be sufficient to only have the audit performed by the Technical Auditor. In reply to his letter, it was also explained to him that it is important to keep the level of the accreditation system, certainly also in comparison with other accreditation systems. Mr. van der Burg stated that to his understanding the ISTA accreditation was one of the cheapest available, but perhaps some information as to where ISTA stands with regards to accreditation costs in comparison to other organisations, where audits have to be performed on an annual basis. [03:01:58]

In answer to the question how expensive the ISTA accreditation system was in comparison to other systems on the market, the Secretary General replied that indeed some comparison studies had been made with other organisations accrediting on the basis of the ISO standard 17025, which is the standard required for laboratory accreditation and as performed in each country by the national accreditation body. Firstly the Secretary General stated that the cost structure of many of the organisations is not transparent and a comparison was therefore not easy to do, and of course the costs vary from country to country. But for example in Europe, a laboratory has to undergo an audit on ISO 17025 every year, not every third year as with ISTA. The laboratory can decide on its scope of accreditation on the basis of which the fee is calculated. In the calculations done to compare the costs, the ISTA accreditation is about 200% cheaper than the ISO accreditation. This was not surprising, because the ISTA system works on a voluntary basis where the members support each other. In addition, the audits performed in different countries by the national accreditation bodies differ substantially, because they are national systems and not one internationally harmonised one like ISTA operates. From the ILAC meeting he had attended, he could tell about harsh discussions the ILAC member countries were having due to the diverse system operated within the single national accreditation bodies, whereas ISTA has a uniform and centralised accreditation system, which is harmonised world wide. The Secretary General reminded the audience that ISTA has a very valuable and very inexpensive accreditation system in place, which is working very well on the basis of a lot of commitment and voluntary support both from its system auditors as well as from the Technical Auditors on behalf of their institutes.

The President emphasised the statements made by the Secretary General in reminding the audience about the excellent results of the laboratories presented in the report of the Proficiency Test Committee on the day before.

The First Vice-President, Mr. John Hampton, commented that it is perfectly understandable for some of the reactions from some members to this decision. In addition he reinforced the point that the Executive Committee would welcome constructive suggestions about the accreditation system, how it may be improved, and how it may be possible to look at reducing costs. But this was not up for discussion today. He reminded the audience that there had been no changes in the fee for the last ten years. What that has meant for that

decision is that other services provided by ISTA have had to suffer as a result of that. And the Executive Committee felt that there was a situation that they could no longer continue with, even if they did not particularly like having to make this decision, but the decision had to be made. In the bottom line: if the changes are not made as it has already been decided, then other ISTA services suffer. [03:07:20]

The delegate from Egypt, Mr. Yehia Abdel Samie, expressed that before the accreditation system was installed in ISTA, member laboratories were able to issue ISTA certificates. Today, a laboratory could not do that, unless it was accredited to do so. Therefore he suggested that the regular membership fees could be reduced by the same rate as the audit fees would cost in three years. This would be justified with the fact that in former times it was possible as a member laboratory to issue certificates, which is now no longer possible.

The President reiterated what had been said by the First Vice-President that constructive suggestions were welcome, but today was not the time for this discussion. She also repeated that the decision had been taken by the Executive Committee to raise the audit fees as proposed by January 1, 2010, to which they were empowered to do according to the Constitution. She thanked for the discussion closed the subject to continue with the next point. [03:10:06]

The delegate from Bolivia, Mr. Jorge Rosales, commented that there are other way to cover the costs for the audit fees, for example to increase the costs for the ISTA orange certificates by one Swiss Franc per certificate and others. He suggested think about other ways to cover these costs, because otherwise the accreditation in future would be only for rich countries.

A female delegate who did not state her name or country asked if it would be possible to increase the annual fee for accreditation without changing the annual fee for the member laboratory?

The President thanked for another suggestion. There were no more comments and therefore she summarised that it was important to continue with the ISTA accreditation system in the best possible way. Then she gave the word to the Secretary General for the next discussion item

Fixation of Annual Subscription Fees

The Secretary General referred to the document *04-2009-OM Proposal for the Membership Fees 2010'* which had been circulated to all ISTA Designated Authorities, ISTA Members and ISTA Observer Organisations for information two months prior to the ISTA Ordinary Meeting as well as being published on the ISTA website at least two months prior to this meeting.

He reminded the delegates about the proposal raised last year to relate the annual increase in membership fees on the inflation rate of previous years. This comment has been taken into account and the Executive Committee decided that what should be considered for the proposal for the annual subscription fees is the inflation rate for Switzerland as defined by the Federal Institute of Statistics. This decision has been implemented and therefore the proposal on the table is to increase the annual subscription fees for 2010 by 2.4%, which follows the inflation rate of Switzerland for the year 2008. [03:13:55]

The delegate from the United States, Ms. Susan Maxon, stated that it is the position of the United States government to oppose to an increase, even though it is related to the inflation rate, but to encourage efficiencies and cost cutting measures to offset inflation. Because over the years even a small

amount of inflation will cause accumulation of a large increase over a period of time. Therefore the United States will vote NO on this proposal.

The delegate from Australia, Mr. Lindsay Cook, stated that Australia also opposes the increase. There is an economic downturn worldwide at the moment and he suggests that almost every commercial organisation in the seed industry is finding their revenues cut and their operating expenses are probably increasing. They are doing it tough and they really do not have an opportunity for increasing their charges or their fees or their prices given the circumstances and ultimately it is the commercial companies which pay the majority of these sorts of fees through the fees imposed on them in terms of testing and certification. So Australia would urge that ISTA along with every other commercial organisation tighten its bill at least this year. And as the US representative has said, try and find savings in operating costs to overcome the need for this increase. It is a modest increase certainly, but the point to be made is that the commercial organisations in the seed industry really do not have that opportunity and we would urge ISTA to adopt a good cooperate citizen policy of over going an increase at least for this year. [03:16:04]

The Secretary General asked if he had understood correctly that the majority of the fees would be covered by companies in Australia.

Mr. Cook answered that the point he was trying to make was that in the case of fees for seed testing and certification the majority of those fees are ultimately met by a commercial operation through fees, and that he thinks that it does not matter which country that is in, whether it is a governmental laboratory doing the testing or a commercial operation, ultimately the cost of that are recovered largely from industry, and industry is really not in the position to meet those costs this year.

The Secretary General thanked for this explanation and further commented that he had just returned from the Congress of the International Seed Federation, and reported that they had an increase of 5% in their membership fees, and that is where the industry sits, and that there was not even a debate about this increase. That would make him believe that also the Australian industry is supporting an increase in fees of 5%. The Secretary General therefore wondered why then they could not have an increase in fees for the seed testing and technology area.

The Australian delegate countered that he is speaking on behalf of Australia, but the principle that he is aspersing applies in all countries.

The Secretary General asked then if there were any concrete proposals for costs savings according to the Australian view. [03:18:04]

Mr. Cook answered that he does not think that this would be his role, but the role of the Executive Committee to manage the operations of ISTA to its best advantage. He acknowledged that in doing so, they recommended to the membership an increase in the fees, but he would still ask the Executive Committee to look at other options for meeting those increase costs.

The Secretary General explained that an exercise had been made to see where costs could be saved. It was very difficult to find any possibilities for this in the operations, because it has already been optimised. But he also wanted to say that cost savings are always possible, the question would however be if these will then have an influence on the current services. And the conclusion of the Executive Committee in that is clearly that the services currently provided by the Association cannot be continued if costs have to be reduced.

The delegate from Kenya, Mr. Joseph Ahenda, stated that this increase would influence the operations of the developing countries, and would not go well with the seed security in developing countries, as all those increases shall be transferred to the consumers, and some of the consumers in these countries may not be able to afford some of these increases. He suggested that ISTA could think along those lines that there is a group that may be affected negatively by this development. [03:19:59]

Ms. Mary Chipili from Zambia noted that while she sympathises with what has been mentioned, the members should not forget that this is their Association, and each one should think to see what they can do for the Association. How can the accreditation be met, how can it be assured to meet the membership fees. If every member is throwing it back to the Executive Committee, as an Executive Member, she would request that maybe the members here make a contribution and suggest ways of how the Association can be moved forward.

The First Vice-President made the comment that if this increase in fees would go ahead, this would not move the Association ahead very much, but would simply covering the cost of inflation which leaves the Association in exactly the same place. The Executive Committee has made a decision, which if there would be bigger plans to move ahead, it could not be achieved with the increase proposed. It is simply to cover the costs of inflation to allow the Association to continue with the same level of service.

There were no more comments. The President asked if there was a motion to go ahead with the vote on the proposal as suggested in the document 04-2009-OM. A motion was received and seconded on the proposal. The Secretary General stated that a single majority of those voting was required to have this proposal accepted and then asked the voting delegates to raise their green YES cards if they were in favour of the proposal to increase the membership fees for 2010 by 2.4%. The Secretary General announced that the official vote counters counted 28 votes in favour of the proposal. [03:25:10] He then asked the voting delegates against the proposal to raise their red NO cards. There were 10 votes registered not in favour of the proposal. The Secretary General therefore declared the proposal as adopted.

Budget 2009

The Secretary General explained that the preliminary budget for 2009 had been adopted at the last Ordinary Meeting, but adjustments had to be made to the budget for this running year.

Following an earlier comment from the United States, the Secretary General confirmed that indeed there was a tendency for the extraordinary losses on membership subscriptions to be noted, on which an eye should be kept on, and hence for the budget 2009 extraordinary losses are to be expected as well. He continued to say that the other budget figures on the income side remain stable and it could not be expected that there would be a lot more income than what has been budgeted. For the certificates it is hoped to reach a higher income as a consequence of the price increase for the same to Swiss Francs CHF 3.00, which had brought a decrease in the income from certificates in the year before. [03:28:40]

The delegate from the United State, Ms. Susan Maxon, asked if there was any progress in finding any members for the category of corporate membership, because this would certainly help the income side.

The Secretary General fully agreed to that statement, but also said that despite the efforts of the Secretariat in approaching a number of bigger companies and institutions, there was no commitment from any to become a corporate member to date.

The President encouraged the members to help finding corporate members for the Association.

Mr. Adriel Garay from the United States, asked if there had been any kind of assessment done on the question as to why not more laboratories are becoming members or accredited by ISTA.

The Secretary General stated that on this question no survey had been done, because a steady increase could be observed in the number of laboratory members and also in accreditations. It is not a huge increase, but it is a steady and continuous one. Unfortunately the Secretariat does not have resources to make in depth studies to find out on a country by country basis why there are laboratories that do not become members and what are their major obstacles. If consulting the world map however, the biggest white spots as concerning membership with ISTA could be found in Africa, and he believed that the cost issue would certainly be related to that. [03:31:29]

Mr. Garay continued that he was really surprised to hear that for instance in Argentina, they have a hundred laboratories and thought it would be interesting to know, why not more are getting incorporated (into ISTA?) and suggested it would perhaps be worth to pursue a little more in order to market the services of the Association more effectively.

The President asked if anybody in the room, perhaps the delegate from Argentina, could answer this question.

The delegate from the Netherlands, Mr. Joost van der Burg, did not claim to have the answer to that question, but he thought it was interesting to see how many companies there were with very nice laboratories, and only few of them being members and hardly any of them accredited, and he would think that there is a big market for ISTA. He suggested that it should be thought about how the Association could serve this group of potential customers better, and one thing could be to be more flexible in the system, for example to come over the constant complaints of many companies about the testing for the certificates that it takes too long and is too rigid. [03:33:27]

The delegate from Argentina, Ms. Monica Moreno, said that the answer to the question as to why not more laboratories were members and accredited was very clear to her: money. As shown in the world map during the presentation of the Secretary General, there were a lot of countries missing. For example Nicaragua, Guatemala, El Salvador, Costa Rica, Colombia, ISTA is not present in those countries. At the ISTA Congress 1992 in Buenos Aires which was held in conjunction with an FAO Congress, all those countries were present, but now not. Maybe ISTA must think in a long term strategic plan about how to keep these countries. [03:35:50]

The First Vice-President, Mr. John Hampton called to mind that when referring to 'ISTA must', 'ISTA' actually means 'us, the members' and for more laboratories becoming members to ISTA is up to everyone here, in your own countries. For more countries becoming members of ISTA, perhaps that is at a more strategic level, involving the Secretariat and the Executive Committee – with your help.

A comment about accreditation: it is financial in some instances, but it is also financial in a business sense. Because the purpose of accreditation is to allow a laboratory to issue ISTA Certificates. And there are some laboratories who

are ISTA member laboratories who do not issue international certificates for whatever reason. It therefore seemed rather logical to him that these laboratories are not interested in accreditation.

He suggested that the members collectively should try to fill in the gaps on the map by looking at their own countries and encourage more seed laboratories to become ISTA members by selling the benefits of ISTA to them. Not necessarily accreditation, because not every laboratory wants to become accredited.

The President supported the idea that a laboratory could have different goals and not necessarily was interested in issuing certificates, for instance a tree seed laboratory. But these laboratories would still be interested in being a member of ISTA, to participate in the international proficiency tests, meetings and information network of the Association. On the other hand, there used to be a lot of gaps in Asia, and now there are a lot of member laboratories in that region, many of them preparing for accreditation.

Furthermore she did not agree about the point raised by the delegate of Argentina, about the countries identified which were not present in ISTA. She had personally attended the FELAS conference in Colombia and has there met big interest in ISTA, although she realises that these processes of course take time and a lot of support from existing members.

Ms. Anne Bülow-Olsen, Chief Editor of *Seed Science and Technology* reminded the audience about what the Secretary General had said earlier, that the financial reserves are extremely low for an international organisation like ours. The way she sees it, is that the 'ISTA ship' is a little bit like Titanic: the music is playing, the members are working on the Rules etc, continuing to do what they have been doing for a while and what they are good at doing, it is all going well while the music is playing nicely in the saloon... but the captains – all the people who are in the decision making – and basically that is many of us, are watching that there is a leak in the hull somewhere. The leak is a slow loss of money, year by year, which is not a viable situation. We – ISTA, us, the members – need to focus on what is important, we need to look at expansions, because if we do not expand, we will probably have losses again – and we need to simplify, in order to stop these leaks. Ms. Anne Bülow-Olsen further stated that what she thinks needs to be done is to look at what is important, and shed what may not be quite as important. This would not be an easy task, but one that has to be thought about. She repeated that it was important to simplify, if there were ways how things could be done in a simpler, easier, cheaper way, then this should be done. [03:41:41]

The Secretary General advised that one thing should not be forgot in this room: if looking at the countries we are serving, the G8 states, the eight richest countries in the world, are among them. Looking at the industry, the annual turn over of the seed industry is 36 billion per year. But no matter if discussing on government level or with the International Seed Federation, the only answer received is 'cut costs'. He gave this for consideration and as an appeal to everyone in the room that this should be something that needs to be addressed.

The Secretary General then continued with the expenditure side of the budget 2009, where he drew the attention to one point which is the direct costs for the Technical Committees. This account has seen an increase of nearly 100%, and it had to be foreseen that in 2009 more financial resources had to be spent on the Technical Committees support. He further explained that a lot of this money was going into the financing of the GMO proficiency test. [03:44:04]

Ms. Valerie Cockerell from the United Kingdom asked if the Secretary General could confirm if that 50% increase was for the costs of the GMO proficiency test only.

The Secretary General answered that also costs from other technical committee areas were included in these expenses, but a large portion was due to the GMO proficiency test. He also said that it would be possible that other solutions could be found for the financing of the GMO proficiency test in the future, but for 2009 this was the way it had to be considered.

The delegate from Austria, Ms. Charlotte Leonhardt, noted that the expenses for technical publications increased quite tremendously, as well as for the website. She asked if it would not be possible to trade electronic publishing on the website in order to reduce the printing costs for the technical publications in that way.

The Secretary General explained that for the year 2009 it had been scheduled to publish four new handbooks. This schedule is coming from the Technical Committees, so the Secretariat calculated the costs for the production of these handbooks and therefore these figures had to be adjusted. If costs are cut down there, it would mean that handbooks already worked on and nearly finalised by the Technical Committees could not be published.

In regards to the website, the discussion had been running for four years to split the website into a public section and a closed members' section, and to make available more electronic tools in the later one in order to facilitate the flow of information. Calculations and estimates have been elaborated together with IT people to achieve this and these costs were implemented into the budget for realisation in 2009.

Ms. Charlotte Leonhardt, then questioned why then the income from the technical publications had not been adjusted accordingly.

The Secretary General thanked for the question and clarified that of each new ISTA publication, a free copy was given to the members, meaning that about 250 copies of each new publication are dispatched world wide at free delivery for the members, but without additional income for the Association. Another reason for this low income figure was due to an effort of careful budgeting, not to overestimate the income.

A male person who did not state his name asked if the Secretary General could explain the critical points in the budget, for example for the website expenses are marked out at Swiss Francs 30'000.-, but from the income side there is zero.

The Secretary General explained that the website is not used as a commercial tool by the Association, but is used as a communication and information tool only. It is considered to be an extra service to the members and used as a marketing tool to attract more members. Therefore there is no income allocated from this account. He further explained that also for other items there was not always a counterpart on the income side.

The delegate from the United State, Ms. Susan Maxon, noted that there was a loss of over Swiss Francs 50'000.- budgeted for the year 2009. She asked how this was expected to be covered.

The Secretary General enlightened that the only way to cover this loss was to use resources from the already very low financial reserves of the Association.

Ms. Susan Maxon, wondered if there was even enough money in the reserves to cover that expected loss.

The Secretary General repeated that the financial reserves of the Association were currently at about Swiss Francs 250'000.-, but if this loss would have the

be covered, the financial reserves of the Association would then drop to below 10%. [03:50:56]

The First Vice-President, Mr. John Hampton, further explained that this budget was budgeted for what is believed could be expenditure. For the Technical Committee account, the figures have been budgeted on the assumption that full costs of the GMO proficiency test would have to be covered, but resources of funding are actively being searched for that.

There were no more comments or questions, so the President asked for adoption of the budget 2009 by applause, which was received. [03:52:10]

Preliminary Budget 2010

The Secretary General continued with the income side of the preliminary budget 2010. Also for this year extraordinary losses on membership subscriptions had to be foreseen. He admitted that the calculations made were rather negative in trying to do careful budgeting.

On the accounts for accreditation, a higher income could be budgeted for due to the implementation of the increased the audit fees as of January 1, 2010.

Ms. Anne Bülow-Olsen, Chief Editor of *Seed Science and Technology* wanted to know what would happen when there was no more money in the Association.

The Secretary General tried to rationalise that in a practical consequence, all staff of the Secretariat would be lost with immediate effect. Since there would not be enough money to cover the 3 months notification period of staff, most likely the Association would run into litigations with staff. For sure one consequence would be the end of the Secretariat. [03:54:56]

The Secretary General then continued with the expenditure side, again with high figures on the Technical Committee accounts. Again this had to do with the GMO proficiency test. As mentioned, other sources of financing are being searched for, but this was an uncertainty for which still needs to be budgeted for. Also on the accounts for the website, the figures are high, again due to major investments planned, for instance on electronic publishing.

If as anticipated, the overall outcome for the preliminary budget 2010 would result in a plus of about Swiss Francs 500.-.

There were no more comments or questions, so the President asked for adoption of the preliminary budget 2010 by applause, which was received. [03:52:10]

The President thanked the members and the Secretary General and asked to move to the next agenda point.

(9) Consideration and Adoption of the proposed Rules Changes

The President mentioned the documents relevant for this agenda point to be *05-2009-OM Proposed Changes to the ISTA International Rules for Seed Testing 2010 Edition* and *06-2009-OM Method Validation Reports on Proposed Changes to the ISTA International Rules for Seed Testing 2010* and asked the chairman of the Rules Committee, Mr. Steve Jones to lead through the proposed rules changes.

The Rules changes proposals had been presented in the Rules Committee session on 17 June and during the Technical Committee meetings. The relevant documents *05-2009-OM Proposed Changes to the ISTA International Rules for Seed Testing 2010 Edition* and *06-2009-OM Method Validation Reports on Proposed Changes to the ISTA International Rules for Seed Testing 2010* had been distributed by the Secretariat to all the ISTA Designated Authorities, ISTA members and ISTA Observer Organisations for information two months prior to the ISTA Ordinary Meeting and were posted on the ISTA website at least two months prior to this meeting.

A few of the Rules changes proposals have been edited during the discussions in the past two days and the Rules Chair explained that these changes would be shown on the screen in green colour.

The first section of the proposed changes to the Rules, Part A, dealt with the editorial changes. There was a move to accept Part A by applause. The move was seconded. The Rules Chair then asked the voting delegates to accept the proposed rules changes as outlined in Part A of the document *05-2009-OM Proposed Changes to the ISTA International Rules for Seed Testing 2010 Edition* by applause. Part A then was accepted by the voting delegates by applause. [04:02:02]

For Part B and Part C the Rules Chair went through the Rules change proposals one by one. The results of the voting are given on the following pages.

Proposals of Amendments to the ISTA International Rules for Seed Testing, Edition 2010

~~Text proposed for deletion~~
Proposed new text
Text added or amended since printing

PART A. INTRODUCTION OF EDITORIAL CHANGES

A.1. Editorial corrections

CURRENT VERSION	PROPOSED VERSION
Table5A Part 3 ... <i>Kochia scoparia</i> a	Table5A Part 3 ... <i>Kochia scoparia</i>
Annexe to Chapter7: Seed Health Methods	Annexe to Chapter7: Seed Health Methods
p. 7-014-4: Preparation of Media and Solutions -- 2. Malt Agar ... Streptomycin sulfate ...	p. 7-014-4: Preparation of Media and Solutions -- 2. Malt Agar ... Streptomycin sulfate* <u>* Added after autoclaving</u> ...
p. 7-014-5: Potato Dextrose Agar ... Streptomycin sulfate ...	p. 7-014-5: Potato Dextrose Agar ... Streptomycin sulfate* <u>* Added after autoclaving</u> ...
p. 7-016-7: Preparation of Acidified Potato Dextrose Agar (APDA) ... 4. Autoclave at 121°C, ± 15 psi for 15 min. ...	p. 7-016-7: Preparation of Acidified Potato Dextrose Agar (APDA) ... 4. Autoclave at 121 °C, 15 psi for 15 min. ...
p. 7-019-10: Preparation of sterile saline ... 4. Autoclave at 121°C, ± 15 psi for 15 min. ...	p. 7-019-10: Preparation of sterile saline ... 4. Autoclave at 121 °C, 15 psi for 15 min. ...
p. 7-019-11: Preparation of mCS20ABN agar medium ... 5. Autoclave at 121°C, ± 15 psi for 15 min. 7. Allow medium to cool to approx. 50°C and add antibiotic and methionine solutions ...	p. 7-019-11: Preparation of mCS20ABN agar medium ... 5. Autoclave at 121 °C, 15 psi for 15 min. 7. Allow medium to cool to approx. 50 °C and add antibiotic solutions ...
p. 7-020-12: Preparation of sterile saline ... 5. Autoclave at 121°C, ± 15 psi for 15 min. ...	p. 7-020-12: Preparation of sterile saline ... 5. Autoclave at 121 °C, 15 psi for 15 min. ...

CURRENT VERSION	PROPOSED VERSION
<p>p. 7-020-13: Preparation of MKM agar medium ... 4. Autoclave at 121°C, ±15 psi for 15 min. ...</p>	<p>p. 7-020-13: Preparation of MKM agar medium ... 4. Autoclave at 121 °C, 15 psi for 15 min. ...</p>
<p>p. 7-021-9: Quality Assurance ... The quality of milk powder is vital to develop the hydrolysis of starch in MT medium. ...</p>	<p>p. 7-021-9: Quality Assurance ... The quality of milk powder is vital to develop the hydrolysis of <u>milk</u> in MT medium.” ...</p>
<p>15.1 Object The object of a seed vigour test is to provide information about the planting value in a wide range of environments and/or the storage potential of seed lots. The test provides additional information to the standard germination test (see Chapter 5) to assist in differentiation of seed lots of acceptable germination.</p>	<p>15.1 Object The object of a seed vigour test is to provide information about the planting value in a wide range of environments and/or the storage potential of seed lots. The test provides additional information to the standard germination test (see Chapter 5) to assist in <u>the</u> differentiation of seed lots of acceptable germination.</p>
<p>15.2.2 Seed vigour test A seed vigour test is either a direct or indirect analytical procedure to evaluate the vigour of a seed lot under standardised conditions. Direct tests are those tests for which an environmental stress or other conditions are reproduced in the laboratory and the percentage and/or rate of seedling emergence are recorded. Indirect tests are those tests which measure other characteristics of the seed that have proved to be associated with some aspect of seedling performance.</p>	<p>15.2.2 Seed vigour test A seed vigour test is either a direct or <u>an</u> indirect analytical procedure to evaluate the vigour of a seed lot under standardized conditions. Direct tests <u>reproduce</u> environmental stresses or other conditions in the laboratory, and the percentage and/or rate of seedling emergence are recorded. Indirect tests measure other characteristics of the seed that have proved to be associated with some aspect of seedling performance.</p>
<p>15.2.3 Seed lot of ‘acceptable germination’</p>	<p>15.2.3 Acceptable germination</p>
<p>15.5.4 Control samples All vigour tests require rigid control of test conditions and should include a control seed sample, to provide internal quality control of vigour test uniformity. Variability in control seed sample results provides an indication of slight fluctuations in test conditions (e.g. changes in temperature and or seed moisture) which can significantly affect reliability of results. Specific guidelines for the seed lot selection, storage and handling of control samples are described in the <i>ISTA Handbook of Vigour Test Methods</i>.</p>	<p>15.5.4 Control samples All vigour tests require rigid control of test conditions and, <u>where specified</u>, should include a control seed sample, to provide internal quality control of vigour test uniformity. Variability in control seed sample results provides an indication of slight fluctuations in test conditions (e.g. changes in temperature or seed moisture) which can significantly affect <u>the</u> reliability of results. Specific guidelines for seed lot selection, storage and handling of control samples are described in the <i>ISTA Handbook of Vigour Test Methods</i>.</p>

CURRENT VERSION	PROPOSED VERSION
<p>15.6 Calculation and expression of results Results are expressed in different formats for various vigour tests as shown in 15.8.</p>	<p>15.6 Calculation and expression of results Results are expressed in different formats for <u>different</u> vigour tests, as shown in 15.8.</p>
<p>15.8.1.1 Principle ... Seed lots that have high electrolyte leakage, that is, having high leachate conductivity, are considered as having low vigour, whilst those with low leakage (low conductivity) are considered high vigour.</p>	<p>15.8.1.1 Principle ... Seed lots <u>with</u> high electrolyte leakage, <u>i.e.</u> high leachate conductivity, are considered <u>to have</u> low vigour, whilst those with low leakage (low conductivity) are considered <u>to have</u> high vigour.</p>
<p>15.8.1.2 Scope and field of application Submitted seed lots may be fungicide treated. Various sources of fungicide preparations with different purity levels are commercially available and some fungicides may possess additives that may significantly alter conductivity results. Thus, caution must be exercised when using the conductivity test for treated seeds.</p>	<p>15.8.1.2 Scope and field of application Submitted seed lots may <u>have been treated with</u> fungicide. Various fungicide preparations with different purity levels are commercially available, and some fungicides may possess additives that may significantly alter conductivity results. Thus, caution must be exercised when using the conductivity test for treated seeds.</p>
<p>15.8.1.3 Apparatus Conductivity meter: A suitable conductivity meter is direct reading using AC or DC current, with a dip cell having a cell constant of 1.0. The meter specifications should include a range of 0-1999 $\mu\text{S cm}^{-1}$, a resolution of at least 0.1 $\mu\text{S cm}^{-1}$ and an accuracy of $\pm 1\%$. The temperature range for the meter should include 20-25°C. Erlenmeyer flasks, conical flasks or glass beakers: ...</p>	<p>15.8.1.3 Apparatus Conductivity meter: a direct-reading meter using AC or DC current, with a dip cell <u>that has</u> a cell constant of 1.0, <u>is suitable</u>. The meter specifications should include a <u>conductivity</u> range of 0–1999 $\mu\text{S cm}^{-1}$, a resolution of at least 0.1 $\mu\text{S cm}^{-1}$, an accuracy of $\pm 1\%$ and a temperature range <u>of</u> 20–25 °C. <u>Containers</u> (Erlenmeyer flasks or beakers): ...</p>
<p>Water: Deionised water or distilled water should be used. The conductivity of either the deionised or distilled water must be measured and must not exceed 5 $\mu\text{S cm}^{-1}$ at 20°C. ... Germinator, incubator or walk-in room: A germinator, incubator or walk-in room <u>at</u> a constant temperature of 20 \pm 2°C is required. ...</p>	<p>Water: deionized water or distilled water should be used. The conductivity of the deionized or distilled water must be measured and must not exceed 5 $\mu\text{S cm}^{-1}$ at 20 °C. ... Germinator, incubator or walk-in room: a constant temperature of 20 \pm 2 °C is required. ...</p>

CURRENT VERSION	PROPOSED VERSION
<p>15.8.1.4 Preparation of the sample before measuring conductivity Determine the moisture content (me) of the submitted sample according to Chapter 9. If the moisture content is below 10% or above 14%, it must be adjusted to between 10 and 14% me.</p> <p>...</p>	<p>15.8.1.4 Preparation of the sample before measuring conductivity Determine the moisture content of the submitted sample according to Chapter 9. If the moisture content is below 10% or above 14%, it must be adjusted to between 10 and 14%.</p> <p>...</p>
<p>In the case of a moisture content below 10%, raise the moisture content by placing each weighed sub-sample between moist cloths (paper towels) until it reaches a weight equivalent to between 10 and 14% me.</p> <p>...</p>	<p>In the case of a moisture content below 10%, raise the moisture content by placing each weighed subsample between moist cloths (paper towels) until it reaches a weight equivalent to a moisture content between 10 and 14%.</p> <p>...</p>
<p>In the case of a moisture content above 14%, reduce the moisture content by placing the weighed sub-sample in an oven at 30°C until it reaches a weight equivalent to between 10 and 14% me. Experience indicates that seeds having an initial me of around 15% take 1h to reach 14% me and 5-6 h to reach 10% when dried in this way. When the initial seed moisture content is approximately 16%, it takes 1-2 h drying to reach 14% me and 8-10 h to reach 10% me.</p> <p>...</p>	<p>In the case of a moisture content above 14%, reduce the moisture content by placing the weighed subsample in an oven at 30 °C until it reaches a weight equivalent to a moisture content between 10 and 14%. Experience indicates that seeds with an initial moisture content of around 15% take 1 h to reach 14%, and 5–6 h to reach 10%, when dried in this way. When the initial seed moisture content is approximately 16%, it takes 1–2 h drying to reach 14% <u>and</u> 8–10 h to reach 10%.</p> <p>...</p>
$\text{Weight of subsample at 10 or 14\% mc} = (\text{initial weight}) \cdot \frac{(100 - \text{initial mc})}{(100 - \text{desired seed mc}^*)}$ <p>mc = moisture content</p>	
<p>*The desired me will be either 10 or 14%.</p> <p>When the sub-sample has reached a weight equivalent to between 10 and 14% me, it should be sealed in a moisture-proof container such as an aluminium foil packet or polythene bag and held for 12-18 h at 5-10°C for the moisture content to equilibrate throughout the seed.</p>	<p>*The desired moisture content will be either 10 or 14%.</p> <p>When the subsample has reached a weight equivalent to a moisture content between 10 and 14%, it should be sealed in a moisture-proof container, such as an aluminium foil packet or polythene bag, and held for 12–18 h at 5–10 °C to allow the moisture content to equilibrate throughout the seed.</p>

CURRENT VERSION	PROPOSED VERSION
<p><i>15.8.1.5.1 Calibrating the dip cell</i> ...</p> <p>Note that calibration of the meter using these solutions is carried out at 25 °C, which is possible when using a meter with the specifications described above.</p> <p>...</p>	<p><i>15.8.1.5.1 Calibrating the dip cell</i> ...</p> <p>Note that calibration of the meter using these solutions is carried out at 25 °C, which is possible when using a meter with the specifications described <u>in 15.8.1.3</u>.</p> <p>...</p>
<p><i>15.8.1.5.2 Checking the cleanliness of equipment</i></p> <p>Each testing day, select at random 2 out of every 10 flasks to be used, ... (etc.)</p>	<p><i>15.8.1.5.2 Checking the cleanliness of equipment</i></p> <p>Each testing day, select at random 2 out of every 10 <u>containers</u> to be used, ... (etc.)</p>
<p><i>15.8.1.6.2 Preparing the flasks/beakers</i> ... (etc.)</p>	<p><i>15.8.1.6.2 Preparing the <u>containers</u></i> ... (etc.)</p>
<p><i>15.8.1.6.5 Measuring the conductivity of the solution</i> ...</p> <p>Once the leachate has been mixed, take several measurements of the conductivity until a stable value is obtained. If hard seeds are observed during testing, they should be removed after the conductivity has been measured, the number recorded, surface dried, weighed and the weight subtracted from the initial weight of the 50 seed replicate.</p>	<p><i>15.8.1.6.5 Measuring the conductivity of the solution</i> ...</p> <p>Once the leachate has been mixed, take several measurements of the conductivity until a stable value is obtained. If hard seeds are observed during testing, they should be removed after the conductivity <u>test, and their number recorded. They should then be surface dried and weighed, and their</u> weight subtracted from the initial weight of the 50-seed replicate.</p>
<p><i>15.8.1.6.6 Accounting for the conductivity of the original water source</i></p> <p>Measure the conductivity of one control flask/beaker. Any increase in the reading above 5 $\mu\text{S cm}^{-1}$ indicates a potential problem with the cleanliness of the dip cell. Re-wash the dip cell and retest the conductivity of the other control flask/beaker. If this also indicates an increase in reading, there is a problem with the dip cell and conductivity measurements cannot be made until this has been satisfactorily cleaned. Most conductivity meters provide instructions for cleaning the dip cell. Where the conductivity of the second control flask/beaker does not show an increase above 5 $\mu\text{S cm}^{-1}$, this conductivity reading, or the mean of the two controls if neither has increased, represents the background reading and should be subtracted from the conductivity reading already recorded for each replicate flask/beaker.</p>	<p><i>15.8.1.6.6 Accounting for the conductivity of the original water source</i></p> <p>Measure the conductivity of one control <u>container</u>. Any increase in <u>conductivity</u> above 5 $\mu\text{S cm}^{-1}$ indicates a potential problem with the cleanness of the dip cell. Rewash the dip cell and <u>measure</u> the conductivity of the other control <u>container</u>. If this also indicates an increase in <u>conductivity</u>, there is a problem with the dip cell, and conductivity measurements cannot be made until this has been satisfactorily cleaned. Most conductivity meters provide instructions for cleaning the dip cell. Where the conductivity of the second control <u>container</u> does not show an increase above 5 $\mu\text{S cm}^{-1}$, this <u>value</u>, or the mean of the two controls if neither has increased, represents the background <u>conductivity</u>, which should be subtracted from the <u>values</u> already recorded for each replicate container.</p>

CURRENT VERSION	PROPOSED VERSION
<p>15.8.1.7 Calculation and expression of results ..., are shown in Table 15D. When reported on an ISTA International Seed Analysis Certificate, results are entered under 'Other Determinations'.</p>	<p>15.8.1.7 Calculation and expression of results ..., are shown in Table 15D. 15.8.1.8 Reporting results The result of a seed vigour test using the conductivity test method must be reported under 'Other determinations' as follows...(see 1.5.2.16.1)</p>
<p>15.8.2.3 Apparatus Balance: Analytical balance capable of weighing to 0.001 g. ...</p>	<p>15.8.2.3 Apparatus Balance: analytical balance capable of weighing to the nearest 0.001 g. ...</p>
<p>15.8.2.4 Preparation of the sample Determine the moisture content (me) of the submitted sample according to Chapter 9. If the moisture content is below 10% or above 14%, it must be adjusted to between 10 and 14% although it is not necessary for the me of all samples to be the same within this range. ...</p>	<p>15.8.2.4 Preparation of the sample Determine the moisture content of the submitted sample according to Chapter 9. If the moisture content is below 10% or above 14%, it must be adjusted to between 10 and 14%, although it is not necessary for the moisture content of all samples to be the same within this range. ...</p>
<p>In the case of a moisture content below 10%, raise the moisture content by placing each weighed sub-sample between moist cloths (paper towels) or in a high humidity environment until it reaches a weight equivalent to between 10 and 14% me. In the case of a moisture content above 14%, reduce the moisture content by placing the weighed sub-sample in an oven at 30°C until it reaches a weight equivalent to between 10 and 14% moisture content. ...</p>	<p>In the case of a moisture content below 10%, raise the moisture content by placing each weighed subsample between moist cloths (paper towels) or in a high-humidity environment until it reaches a weight equivalent to a moisture content between 10 and 14%. In the case of a moisture content above 14%, reduce the moisture content by placing the weighed subsample in an oven at 30 °C until it reaches a weight equivalent to a moisture content between 10 and 14%. ...</p>
<p>Weight of subsample at 10 or 14% mc = (initial weight) •</p>	<p>$\frac{(100 - \text{initial mc})}{(100 - \text{desired seed mc}^*)}$</p>
<p>mc = moisture content *The desired me will be either 10 or 14%. When the sub-sample has reached a weight equivalent to between 10 and 14% me, it should be sealed in a moisture-proof container such as an aluminium foil packet or polythene bag and held for 12-18 h at 5-10°C for the moisture content to equilibrate throughout the seed.</p>	<p>*The desired moisture content will be either 10 or 14%. When the subsample has reached a weight equivalent to a moisture content between 10 and 14%, it should be sealed in a moisture-proof container, such as an aluminium foil packet or polythene bag, and held for 12-18 h at 5-10 °C to allow the moisture content to equilibrate throughout the seed.</p>

CURRENT VERSION	PROPOSED VERSION
<p><i>15.8.2.6.1 Preparing the plastic AA boxes and seed sample</i></p> <p>Place 40 ml (\pm 1.0 ml) of distilled or deionized water in each plastic AA box and insert a dry screen tray, being ertain not to splash water onto the screen.</p> <p>...</p>	<p><i>15.8.2.6.1 Preparing the plastic AA boxes and seed sample</i></p> <p>Place 40 ml (\pm 1.0 ml) of distilled or deionized water in each plastic AA box and insert a dry screen tray, being careful not to splash water onto the screen.</p> <p>...</p>
<p>15.8.2.7 Calculation and expression of results</p> <p>..., are shown in Table 15G.</p> <p>When reported on an ISTA International Seed Analysis Certificate, results are entered under 'Other Determinations'.</p>	<p>15.8.2.7 Calculation and expression of results</p> <p>..., are shown in Table 15G.</p> <p>15.8.2.8 Reporting results</p> <p>The result of a seed vigour test using the accelerated ageing test method must be reported under 'Other determinations' as follows:...(see 1.5.2.16.2)</p>
Chapter 16: Tolerances	...
All tolerance tables from Chapter 16 have been transferred to their respective chapters.	
Appendix A: Rules for size and grading of seeds	Chapter 16: Rules for size and grading of seeds
Appendix B: Rules for the Issue of...	Chapter 17: Rules for the issue of...

Section 8.2.2

The text mentions as an example of a test included in Chapter 8 ploidy testing. This is not true so the words ploidy testing will be deleted.

PART B. NEW SPECIES AND CHANGES OF SPECIES NAMES

B.1. Addition of *Brachiaria brizantha*

This Rules proposal could be withdrawn if it has not been approved by the Germination Committee or the validation report is not available for discussion at the Zurich meeting.

New entries: Table 2A Part 1 Agricultural and vegetable species

Species	Maximum weight of lot	Minimum sample weights		
		Submitted sample	Working sample for purity analysis	Working sample for count of other species
	kg	g	g	g
<u><i>Brachiaria brizantha</i></u> (Hochst. ex A. Rich.) Stapf	10 000	100	10	100

New entries: Table 5A Part 1 Agricultural and vegetable seeds

Species	Prescriptions for:				Additional directions including recommendations for breaking dormancy
	Substrate	Temperature (°C)	First count (d)	Final count (d)	
1	2	3	4	5	6
<u><i>Brachiaria brizantha</i></u>	TP	20–35	7	21	H ₂ SO ₄ followed by Preheat; KNO ₃

Vote to accept item:	Yes votes	No votes	Result
B.1			accepted

PART C. RULES CHANGES AND NEW METHODS REQUIRING A VOTE

Chapters 2, 7 and 11

C.0.1. Revised definition of seed treatment applicable to several Rules chapters

At present, the ISTA Rules contain three different definitions of “Seed Treatment”. At the 2007 Congress, the ISTA members requested that these inconsistencies be removed, and in response to this, the Secretariat prepared a document for discussion within the ECOM at the 2008 Ordinary Meeting. The ECOM duly considered the document, and decided that a Working Group be established to define “Seed Treatment” for the ISTA Rules. The following proposal has been developed by a working group of the ISTA Executive Committee and approved by a majority vote of the Rules Committee.

The current proposal does not go as far as to review all occurrences of the word “treatment” in the ISTA Rules. Such changes will coincide with on-going reviews by technical committees of individual Chapters of the Rules, in particular for the Germination Chapter where the terms treatment and pre-treatment are used.

ISTA considers that “Seed Treatment” is a generic term and that the following definition is proposed.

If this generic term is accepted changes will be required in Chapters 7 and 11 as detailed below.

CURRENT VERSION	PROPOSED VERSION
<p>2.2.11 Coated seeds</p> <p>Coated seeds.....</p> <p>Treated seed. Seeds with treatments, which have not resulted in a significant change in size, shape or addition to the weight of the original seed.</p>	<p><u>2.2.11 Treated seed</u></p> <p><u>“Seed treatment” is a generic term which indicates that a seed lot has been subjected to:</u></p> <p><u>a) the application of a compound including chemicals, nutrients or hormones</u></p> <p><u>b) the application of a biological product including micro-organisms</u></p> <p><u>c) a process including wetting and drying</u></p> <p><u>d) an energy form including heat, radiation, electricity or magnetism;</u></p> <p><u>but does not specify the application method.</u></p> <p><u>Seed treatment does not significantly change the size, shape or add to the weight of the seeds in the lot.</u></p> <p>2.2.12 Coated seeds</p> <p>Coated seeds.....</p>

CURRENT VERSION	PROPOSED VERSION
<p>7.2.3 Treatment</p> <p>Any process, physical, biological or chemical, to which a seed lot is subjected, including seed coatings.</p>	<p>7.2.3 Seed treatment</p> <p>See 2.2.11. For seed health testing, a seed lot may be treated for the purpose of controlling plant pathogens or insect pests, or correcting trace element deficiencies.</p>
CURRENT VERSION	PROPOSED VERSION
<p>11.1 Objects</p> <p>... However, seed treated in traditional ways with pesticides alone is not covered and ...</p>	<p>11.1 Objects</p> <p>...However, treated seeds are not covered and ...</p>
CURRENT VERSION	PROPOSED VERSION
<p>11.1.1 Definitions</p> <p>...</p> <p>Treated seed. Seed to which only pesticides, dyes or other additives have been applied which have not resulted in a significant change in size, shape or addition to weight of the original seed and which can still be tested according to the methods prescribed in the other chapters.</p>	<p>11.1.1 Definitions</p> <p>...</p> <p>Seed treatment. See 2.2.11. Seeds which have received seed treatment must still be tested according to the methods prescribed in other chapters.</p>

Vote to accept item:	Yes votes	No votes	Result
C.0.1			accepted

Chapter 1: ISTA Certificates

C.1.1. Revision of 1.5 Reporting results, and synchronization with corresponding paragraphs in other Chapters

Although these are considered as editorial-only changes, they affect how tests results are presented on the ISTA Certificates; therefore, the ECOM would like the membership to vote on the principle of including the expanded Reporting section in Chapter 1 and including the same text in each Chapter, rather than voting on the wording, since the changes are editorial.

For many years, the technical Chapters and Chapter 1 (previously Chapter 17) have had a paragraph on how to “report the results” on an ISTA Certificate.

These paragraphs contain either complementary information or redundant information.

The Executive Committee decided to introduce more consistency into reporting results in the Rules. Therefore, it was decided:

- to merge the paragraphs from Chapter 1 and the related technical chapters;
- to adopt a common structure for each chapter;
- to duplicate the related paragraphs from Chapter 1 into the technical chapters.

The new structure is largely inspired from the current structure in Chapters 2, 3 and 5.

The new structure is intended to give guidance on:

- mandatory information;

- data;
- format;
- places to report additional information;
- mandatory upon request information;
- conditional information.

The following text would completely replace the existing sections 1.5.1 to 1.5.3.8; as this is a complete replacement, the existing text has not been shown here.

If this proposal is accepted, the existing sections concerned with reporting results would be deleted from all Chapters, and editorially replaced with the text from the relevant section from Chapter 1; for example, the section 1.5.2.2 below would also be included as section 3.7 in the Purity Chapter. This is indicated in brackets for each section of the proposal for information only, and would not be printed in the final version of the Rules.

Some of the proposed text in Chapter 1 will be affected by other proposals being proposed this year. The Chapter 1 text will need to be updated to be in line with the new proposals, for example proposal C.3.1.

<p>PROPOSED VERSION 1.5.</p> <p>(Note: All existing text in 1.5 Reporting results would be deleted and replaced with the proposed version. For ease of reading the text is not underlined)</p>
<p>1.5 Reporting results</p> <p>1.5.1 Sampling and testing</p> <p>From one sampling operation, only one sample may be submitted for testing. The sample may be subjected to one or more of the tests described in the ISTA Rules as requested by the applicant. However, in certain situations (see 2.5.1.6) the submission of separate moisture-proof-packed subsample(s) from the same sampling operation attached to the submitted sample is required.</p> <p>1.5.2 Certificates</p> <p>The results of tests may be reported on one or more ISTA Certificates, separately or combined.</p> <p>Test results must be reported in accordance with the rules for calculating, expressing and reporting results in the appropriate chapter of the ISTA Rules. If there is a space on the certificate for certain determinations which are not made or applicable, ‘N’ for ‘not tested’ must be placed in the space.</p>
<p><i>1.5.2.1 Sampling: heterogeneity testing for seed lots in multiple containers (also 2.9.1.5 (new), 2.9.2.5(new))</i></p> <p>The result of a heterogeneity test for seed lots in multiple containers must be reported under ‘Other determinations’, as follows:</p> <p>a) The results of the H value test:</p> <ul style="list-style-type: none"> – X: test result of the adopted attribute in a container sample; – N: number of independent container samples; – No: number of containers in the lot; – the calculated H value. <p>b) The statement: ‘This H value does/does not indicate significant heterogeneity.’</p>
<p>c) The results of the R value test:</p> <ul style="list-style-type: none"> – X: test result of the adopted attribute in a container sample; – N: number of independent container samples; – No: number of containers in the lot; – the calculated H value. <p>d) The statement: “This R value does/does not indicate significant heterogeneity.”</p> <p>Note: the H value must not be calculated or reported if X is outside the following limits:</p> <ul style="list-style-type: none"> – Purity components: above 99.8% or below 0.2% – Germination: above 99.0% or below 1.0% – Number of specified seeds: below two per sample
<p><i>1.5.2.2 Purity (also 3.7)</i></p> <p>The results of a purity test must be reported in the spaces provided as follows:</p> <ul style="list-style-type: none"> – The scientific name of the species of pure seed, in accordance with Table 2A.

Where it is impossible to determine the species with certainty on the basis of seed characteristics, the genus name only must be reported (e.g. *Malus* sp.).

- The percentage by weight of pure seed, inert matter and other seeds, given to one decimal place. The percentage of all components must total 100%. Components amounting to less than 0.05% must be reported as 'Trace' or 'TR' (for 'Trace'). If no inert matter or other seeds are found, this must be reported as '0.0'.
- The kind of inert matter.
- The scientific name of every species of other seeds found, in accordance, where applicable, with the current *ISTA List of Stabilized Plant Names*, available at www.seedtest.org.
- The actual weight of the working sample tested for purity, if it deviates from the weight prescribed in Table 2A, column 4.

Note: the paragraph above will be amended and expanded if Proposal C.3.1. is accepted.

- The percentage of winged seed (as defined in Pure Seed Definitions 47 and 51), if winged seeds are found.

Upon request, the following information ~~may~~ must be reported under 'Other determinations' as follows:

- The percentage by weight of a specified species, entered immediately after the name of the species to the nearest 0.1%. Species for which the percentage by weight has been requested are listed first.
- Other seeds may be divided into 'other crop seeds' and 'weed seeds'. In this case, the words 'Other crop seeds' must be entered, followed by the percentage by weight of other crop seeds and the name(s) of the species found. This procedure must also be used for 'Weed seeds'.
- Multiple seed units must be reported as '% MSU'.
- Seeds with appendages attached must be reported as '% seeds with appendages attached'.
- The kinds of inert matter, together with the percentage by weight of any particular kind (to one decimal place).

The percentages may be reported to more than one decimal place if requested.

1.5.2.3 Purity tests on coated seeds (also 11.3.7)

The result of a purity test on coated seeds must be reported as follows:

- Following the species name, the words 'seed pellets', 'encrusted seeds', 'seed granules', 'seed tapes' or 'seed mats', as applicable, must be clearly entered.
- The results must be reported to one decimal place, and the percentage of all components must total 100%. Components amounting to less than 0.05% must be reported as 'Trace' or 'TR' (for 'Trace').
- In the case of pelleted seeds only, the percentages of pure pelleted seeds, inert matter and unpelleted seeds must be reported in the spaces provided for 'Pure seeds', 'Inert matter', and 'Other seeds', respectively.
- The name and number of the seeds of each species found in the examination of the 100 seeds removed from the pellets or tapes must be reported under 'Other determinations'.

Upon request, the following information may be reported under 'Other determinations'

as follows:

- Purity test on depelleted seeds. The component parts (pure seed, other seeds and inert matter) may be reported as percentages of their total weight, ignoring the pelleting material.
The percentage of pelleting material must be reported separately only on request. The result of this test is to be reported: 'weight of ... material excluded'.
- Purity of seeds removed from tapes. The component parts (pure seed, other seeds, and inert matter) may be reported as percentages of their total weight, ignoring the tape material. The result of this test is to be reported: 'weight of ... material excluded'.

1.5.2.4 Determination of other seeds by number (also 4.7)

Note: 1.5.2.4 will be amended and expanded if Proposal C.4.1 is accepted.

The result of a determination of other seeds by number must be reported under 'Other determinations' as follows:

- The actual weight of seed examined.
- The scientific name and number of seeds of each species sought and found in this weight.
- If the full weight prescribed in Table 2A was examined for all other species present, then the words 'Complete test' must be entered, alongside the weight of seed examined.
- If the examination was for only a limited range of other species, then the words 'Limited test' must be entered.
- If the weight examined for all other species was less than the prescribed weight, then the words 'Reduced test' must be entered.
- If the weight examined was less than the prescribed weight in Table 2A, and only a limited range of other species was examined, then the words 'Reduced-limited test' must be entered.
- If a sample of at least 25 000 seeds was examined, and this sample was below the weight prescribed in Table 2A, then the weight of seed examined and the statement 'Test based on at least 25 000 seeds' must be entered.

Upon request, the results may in addition be expressed in some other way, such as 'weight of seeds found' or 'number of seeds per kilogram'.

1.5.2.5 Determination of other seeds by number on coated seeds (also 11.4.7)

The result of a determination of other seeds by number on ~~other~~ coated seeds must be reported as follows:

- Following the species name, the words 'seed pellets', 'encrusted seeds', 'seed granules', 'seed tapes' or 'seed mats', as applicable, must be clearly entered.
- Under 'Other determinations', the actual weight (or length of tape, or area of mat) and approximate number of pelleted seeds examined must be entered, together with the scientific name and number of seeds of each species sought and found in this weight, length or area.

Upon request, the result may in addition be expressed in some other way, such as number of seeds per kilogram, per metre or per square metre.

1.5.2.6 Germination (also 5.9)

The result of a germination test must be reported in the spaces provided as follows:

- the duration of the test;

- the percentages, calculated to the nearest whole number (5.8.1), of normal seedlings, hard seeds, fresh seeds, abnormal seedlings and dead seeds. If the result for any of these categories is found to be zero, it must be reported as '0'.

The following additional information must also be reported under 'Other determinations':

- The germination method using the abbreviations used in Table 5A, including at least substrate and temperature.
- Any special treatment or method used for promoting germination (5.6.3).
- The germination percentage obtained within the prescribed time, if the germination period was extended beyond the period indicated in Table 5A. The statement must be entered as follows: 'After the prescribed period of ... days, there were ...% normal seedlings.'
- The second result obtained, if duplicate tests were indicated in Table 5A.

Upon request, the following information may be reported as follows:

- the result of any additional test;
- the viability of ungerminated seeds and the method used to determine it;
- the categories of ungerminated seeds (as listed in 5.6.5.3) and the method used to determine them;
- in the case of multigerminant seed units: the number of normal seedlings produced by 100 units, and the proportion of units producing one, two or more than two normal seedlings.

1.5.2.7 Germination of coated seeds (also 11.5.8)

The result of a germination test on coated seeds must be reported as follows:

- Following the species name, the words 'seed pellets', 'encrusted seeds', 'seed granules', 'seed tapes' or 'seed mats', as applicable, must be clearly entered in the space provided.
- The percentage of pellets or seed in tapes with normal seedlings, with abnormal seedlings and without seedlings.
- The duration of the test.

The following additional information must also be reported under 'Other determinations':

- The method used for the germination test.
- For seed tapes or mats: the number of normal seedlings per metre of tape or square metre of mat.

Seedlings that are obviously not of the species stated by the applicant, even if otherwise normal, must not be included in the germination result, but their number must be reported separately.

1.5.2.8 Tetrazolium test (also 6.7)

The result of a tetrazolium test must be reported under 'Other determinations' as follows:

- The statement 'Tetrazolium test: ...% of seeds were viable' must be entered.
- In cases where the testing procedure (premoistening time, tetrazolium concentration, staining temperature, staining time) deviates from that prescribed in Table 6A, the corresponding deviating procedures must also be reported.
- If individual seeds are tested at the end of the germination test, the result must be

reported in accordance with 5.9.

In addition, in the case of species of *Fabaceae*, one of the following, and only one, must be reported:

Either the percentage of hard seeds found in the test

or the percentage of hard seeds included in the reported percentage of viable seeds.

At the discretion of the seed testing station, further information may be reported, e.g. percentage of seeds that were empty, with larvae, broken or decayed.

1.5.2.9 Seed health test (also 7.6)

The results of a test for seed health must be reported under 'Other determinations' as follows:

- either qualitative or quantitative results, as specified in the individual methods;
- negative and positive results, as specified in the individual methods;
- the scientific name of the pathogen detected;
- the percentage of infected seeds;
- the method used, including any pretreatment (7.2.2);
- the size of the sample or fraction examined;
- any additional permitted procedure used.

The absence of a statement concerning the health condition of the seed does not necessarily imply that the health condition is satisfactory.

1.5.2.10 Species and variety testing (also 8.7)

The results must be reported under 'Other determinations' and in addition the following information must be given:

- a) the request of the applicant;
- b) the trait(s) and the method(s) used;
- c) the kind of preparation of the working sample (e.g. the whole working sample excluding the inert matter or only the pure seed fraction, washing);
- d) whether an authentic standard sample or a standard reference was used; if a standard reference was used, its origin must be indicated;
- e) the number of seeds, seedlings or plants examined. When it is difficult to determine the total number of plants examined in field plots, the mass of seed sown must be reported.

1.5.2.10.1 Reporting results of verification of species and variety

1.5.2.10.1.1 Results of examination of individual seeds or seedlings

Suggested phrases for reporting divergent seeds or seedlings depending upon the result are as follows:

- a) if none was found: "The test performed revealed nothing to indicate that the species (and/or variety) stated by the applicant is incorrect."
- b) if non-conforming seeds were found: "Out of ... seeds examined, ... seeds do not conform to the authentic standard sample of the species (and/or variety) stated by the applicant."
- c) if non-conforming seedlings were found: "Out of seeds producing normal seedlings, ...% do not conform to the authentic standard sample of the species

(and/or variety) stated by the applicant.”

- d) if the total working sample was found to be of a species and/or variety other than that stated by the applicant: “The sample does not conform to the authentic standard sample of the species (and/or variety) stated by the applicant.”

1.5.2.10.1.2 Results of a field plot examination

The results must, whenever possible, be reported as a percentage of each other species, other variety or aberrant found. When the expression of the result as a percentage is not possible, appropriate comments regarding the conformity of the sample may be reported.

If nothing worthy of special comment was found the following statement is suggested: “The results of a field plot examination of this sample revealed nothing to indicate that the species (and/or variety) stated by the sender is (are) incorrect.”

1.5.2.10.1.3 Reporting probabilities of meeting specifications

The result may be reported as: “On the basis of the traits tested, the seed lot meets the specification of ...% minimum species (or variety) purity with ...% confidence.”

1.5.2.10.2 Reporting test results of presence of specified traits

1.5.2.10.2.1 Qualitative test results

Suggested phrases for reporting depending upon the result are as follows:

- a) if the specified trait was not found: “The test performed revealed nothing to indicate the presence of the trait specified by the applicant.”
- b) if the specified trait was found: “The presence of the trait specified by the applicant was detected.”

The limit of detection of the method used should be provided.

1.5.2.10.2.2 Quantitative results obtained by multiple qualitative tests of individual or bulks of seeds or seedlings

Results may be reported as the percentage of seeds or seedlings showing the trait specified by the applicant. Suggested phrases for reporting depending upon the result are as follows:

- a) if none was found: “The test performed revealed nothing to indicate the presence of the trait specified by the applicant.”
- b) if seeds showing the trait were found: “Out of seeds examined seeds showed the trait specified by the applicant.”
- c) if seedlings showing the trait were found: “Out of seeds producing normal seedlings, % showed the trait specified by the applicant.”

1.5.2.10.2.3 Quantitative measurements of traits in bulk samples

Units may be percent seeds by number, percent seeds by mass, percent by protein, percent by number of DNA copies, or any other determinant by percent. The limit of detection (LOD) and the limit of quantification (LOQ) of the method used, the testing plan (e.g. number of replicate seed samples, number of replicate flour samples per seed sample, number of extracts per flour sample, number of replicate measurements per extract) and the standard deviation of the test result should be provided.

Suggested phrases for reporting depending upon the result are as follows:

- a) if the specified trait was not found: “The test performed revealed nothing to indicate the presence of the trait specified by the applicant at a level above LOD.”
- b) if the specified trait was found at a level above LOD and below LOQ: “The trait specified by the applicant was present at a level below the LOQ of the method

<p>used.”</p> <p>c) if the specified trait was found at a level above LOQ: “The trait specified by the applicant was found at a percentage of ... % [units].” (where [units] are the units of measurement of the test used)</p> <p><i>1.5.2.10.2.4 Reporting probabilities of meeting or exceeding specifications</i></p> <p>Independent of the type of method used, a suggested phrase for reporting the results is: “For the trait specified by the applicant, the seed lot meets the specification of ...% (maximum or minimum) with ...% confidence.”</p>
<p><i>1.5.2.11 Moisture content (also 9.1.7, 9.2.2.7)</i></p> <p>This Rule is applicable to both the oven method (9.1.7) and the moisture meter method (9.2.2.7).</p> <p>The result of a moisture content test must be reported in the space provided to the nearest 0.1%.</p> <p>The method must be reported (duration and temperature).</p> <p>The following additional information must also be reported under ‘Other Determinations’:</p> <ul style="list-style-type: none"> – If germinating seeds were present in the sample, the following statement must be entered: ‘Germinating seeds were found in the submitted moisture sample.’ – If mouldy seeds were present in the sample, the following statement must be entered: ‘Mouldy seeds were found in the submitted moisture sample.’ – In the case of pelleted seeds (see Chapter 11), the following statement must be entered: ‘The seeds of the submitted moisture sample were pelleted, and the moisture content reported is the average of seed and pelleting materials.’
<p>Note: 1.5.2.12 will be amended and expanded if Proposal C.10.1 is accepted.</p>
<p><i>1.5.2.12 Weight determination (also 10.7)</i></p> <p>The result of a weight determination test must be reported under ‘Other determinations’ to the number of decimal places used in the determination (10.5.3).</p>
<p><i>1.5.2.13 Excised embryo (also 12.7)</i></p> <p>The result of an excised embryo test must be reported under ‘Other determinations’ as follows:</p> <p>‘Excised embryo test:% of seeds had viable embryos’</p> <p>Further details may be given at the discretion of the seed testing station, e.g. percentages of seeds that were empty, insect-damaged or physically damaged.</p>
<p><i>1.5.2.14 Weighed replicates (also 13.7)</i></p> <p>The result of a weighed replicates test must be reported in the space provided as follows:</p> <ul style="list-style-type: none"> – The result of the purity test (if requested), in the spaces provided for purity tests. – ‘N’ must be entered in all the spaces provided for reporting the percentages of the components of the germination tests. <p>The following additional information must also be reported under ‘Other determinations’:</p> <ul style="list-style-type: none"> – average weight of four replicates; – average number of normal seedlings in four replicates;

<ul style="list-style-type: none"> - number of normal seedlings per kilogram; - other information as specified in 1.5.2.6 Germination; <p>Upon request, other seeds found to be present in the weighed replicates may be reported, giving the scientific name(s) and number(s) of seeds found.</p>
<p><i>1.5.2.15 X-ray test (also 14.7)</i></p> <p>The results of an X-ray test must be reported under 'Other determinations' as percentages of filled, empty, insect-damaged or physically damaged seeds, as follows:</p> <p>'X-ray test results:</p> <p>.....% filled</p> <p>.....% empty</p> <p>.....% insect-damaged</p> <p>.....% physically damaged'.</p>
<p><i>1.5.2.16 Seed vigour test</i></p> <p><i>1.5.2.16.1 Conductivity test (also 15.8.1.8)</i></p> <p>The result of a seed vigour test using the conductivity test method must be reported under 'Other determinations' as follows:</p> <ul style="list-style-type: none"> - The result must be expressed in $\mu\text{S cm}^{-1} \text{g}^{-1}$ to the nearest $0.1 \mu\text{S cm}^{-1} \text{g}^{-1}$. - The seed moisture content before the test must be reported. Where the moisture content has been adjusted before the test, both the initial moisture content and the calculated moisture content after adjustment must be reported. - The results must be accompanied by a statement of the specific variables used in the test (soaking time and temperature) <p><i>1.5.2.16.2 Accelerated ageing test (also 15.8.2.8)</i></p> <p>The result of a seed vigour test using the accelerated aging (AA) method must be reported under 'Other determinations' as follows:</p> <ul style="list-style-type: none"> - Results are expressed as a percentage, calculated to the nearest whole number (5.8.1) of normal seedlings, abnormal seedlings, hard seeds, fresh seeds and dead seeds. If the result for any of these categories is found to be zero, it must be reported as '0'. - The seed moisture content before the test must be reported. Where the moisture content has been adjusted before the test, both the initial moisture content and the calculated moisture content after adjustment must be reported. - The results must be accompanied by a statement of the specific variables used in the test (seed weight per AA box both before and after ageing, ageing time and temperature) <p><i>1.5.2.16.3 Controlled deterioration test (15.8.3.6)</i></p> <p>The result of a seed vigour test using the controlled deterioration test method must be reported under 'Other determinations' as follows:</p> <ul style="list-style-type: none"> - Results are expressed as a percentage, calculated to the nearest whole number (5.8.1), of total germination (normal plus abnormal seedlings) and normal germination. If the result for either of these is found to be zero, it must be reported as '0'. <p>The results must be accompanied by a statement of the specific variables used in the test (raised seed moisture content, deterioration period and temperature)</p>

<p><i>1.5.2.18 Size and grading of seeds (also Chapter 16)</i></p> <p>The result of a screening analysis test for size and grading of seeds must be reported under ‘Other determinations’ as the average of two screening analyses falling within the permitted tolerance limits.</p>
<p><i>1.5.2.19 Weighted average test for herbage and amenity seed lots transported loose in bulk containers (also 17.6)</i></p> <p>The result of a weighted average test performed on herbage and amenity seeds lots, as described in Chapter 17, must be reported in the normal way, except that:</p> <p>a) across the date of sampling, date sample received, date test concluded and test number boxes insert the statement:</p> <p>‘Seed loose in bulk container(s) – see under Other determinations.’</p> <p>b) Under ‘Other determinations’, list the test number, date of sampling and date test concluded of all constituent lots together with the statement:</p> <p>‘The test results reported represent the weighted average of the results reported on these certificates which were not significantly different from each other.’</p>
<p><i>1.5.2.20 Reporting of results of tests not covered by the Rules</i></p> <p>Results must be reported under ‘Other determinations’. The test method must be reported and followed by:</p> <p>“(this method is not covered by the <i>International Rules for Seed Testing</i>).”</p>
<p><i>1.5.3 Reporting of uncertainty of measurement on ISTA Certificates</i></p> <p>...</p> <p><i>1.5.4 Statement referring to compliance with legislative requirements</i></p> <p>...</p>

Vote to accept item:	Yes votes	No votes	Result
C.1.1			accepted

C.1.2. Requirement for moisture-proof containers for moisture testing

The view of the Moisture Committee is that it does not make practical sense to submit a sample for moisture testing in a container that is not moisture proof. If a sample is received for a moisture test in a container that is not moisture proof, the result of the moisture test would generally not represent the moisture of the seed lot, and could be misleading to the customer. This issue has also been raised by an ISTA laboratory as a question to the Moisture Committee.

The proposal is that a new condition d) be inserted into 1.3 to require that samples submitted for moisture determination for both an Orange International Seed Lot Certificate and a Blue International Seed Sample Certificate be in a moisture-proof container. "Moisture-proof" being estimated by the receiving laboratory based on own experiences or on evidence submitted by the sender.

CURRENT VERSION	PROPOSED VERSION
<p>1.3 Conditions for issuance of ISTA Certificates</p> <p>...</p> <p>d) To report results of tests ...</p>	<p>1.3 Conditions for issuance of ISTA Certificates</p> <p>...</p> <p><u>d) For the result of a determination of moisture content to be carried out and the result reported on an ISTA Certificate, the sample must be submitted in an intact, moisture-proof container from which as much air as possible has been excluded (see 9.1.5.1).</u></p> <p>e) To report results of tests ...</p>

Vote to accept item:	Yes votes	No votes	Result
C.1.2			accepted

C.1.3. Clarification on how to state ‘Provisional’ on ‘Original’ and ‘Duplicate’ ISTA certificates

It has been reported via the ISTA auditors that there is some confusion about when and how to report ‘Provisional’ on the ISTA Certificates in combination with ‘Original’ and ‘Duplicate’. This proposal is aimed at making it easier to understand what is expected on the report.

CURRENT VERSION	PROPOSED VERSION
<p>1.4.1 General</p> <p>...</p> <p>f) The word ‘ORIGINAL’, ‘PROVISIONAL’, or ‘DUPLICATE’, as appropriate. Only one original certificate may be issued for a particular set of results.</p>	<p>1.4.1 General</p> <p>...</p> <p>f) The word ‘ORIGINAL’ or ‘DUPLICATE’, for a final certificate.</p> <p>The combination of the words ‘ORIGINAL’ and ‘PROVISIONAL’ or ‘DUPLICATE’ and ‘PROVISIONAL’ as appropriate for a provisional certificate.</p> <p>Only one original certificate may be issued for a particular set of results.</p>

Vote to accept item:	Yes votes	No votes	Result
C.1.3	14	22	not accepted

C.1.4. Requirement for reporting the name of the sampling laboratory

It has been reported via the ISTA auditors that there is some confusion about when to report the sampling laboratory details on the ISTA Orange International Seed Lot Certificates. This proposal is aimed at correcting that by simply always requiring the name and member code of the sampling laboratory even if it is the same as the issuing laboratory.

CURRENT VERSION	PROPOSED VERSION
<p>1.4.2 Orange International Seed Lot Certificate</p> <p>...</p> <p>b) name and ISTA member code of laboratory responsible for sampling, if different from the issuing laboratory;</p> <p>...</p>	<p>1.4.2 Orange International Seed Lot Certificate</p> <p>...</p> <p>b) name and ISTA member code of laboratory responsible for sampling;</p> <p>...</p>

Vote to accept item:	Yes votes	No votes	Result
C.1.4			accepted

Chapter 2: Sampling

C.2.1. Size of submitted sample for *Nicotiana tabacum*

The submitted sample size for *Nicotiana tabacum* is currently 25 g and it is suggested that it should be 5 g. Seeds of *Nicotiana tabacum* are very small. There are more than 15 600 seeds per gram. The size of the working sample for purity analysis is 0.5 g and the size of the working sample for count of other species is 5 g, ten times the size of the working sample for the purity weight. For agricultural species, the submitted sample size needs to be large enough to allow for determination of other species by number based on 10 times the purity weight. Accordingly, the Bulking and Sampling Committee proposes that the submitted sample size is decreased to 5 g.

CURRENT VERSION

Species	Maximum weight of lot	Minimum sample weights		
		Submitted sample	Working sample for purity analysis	Working sample for count of other species
	kg	g	g	g
<i>Nicotiana tabacum</i> L.	10 000	25	0.5	5

PROPOSED VERSION

Species	Maximum weight of lot	Minimum sample weights		
		Submitted sample	Working sample for purity analysis	Working sample for count of other species
	kg	g	g	g
<i>Nicotiana tabacum</i> L.	10 000	<u>5</u>	0.5	5

Vote to accept item:	Yes votes	No votes	Result
C.2.1			accepted

C.2.2. Addition of spiral-slot sampling stick without compartments and cargo sampler

There is a need to validate other sampling equipment not currently included as approved in the ISTA Rules. A spiral-slot sampling stick and a cargo sampler were evaluated by members of the Bulking and Sampling Committee.

This Rules proposal could be withdrawn if it has not been approved by the Bulking and Sampling Committee or the validation report is not available for discussion at the Zurich meeting.

Note: the validations have only been completed for seed smaller than cereals, i.e. grasses and clovers.

CURRENT VERSION	PROPOSED VERSION
<p>2.5.1.3 Taking primary samples</p> <p>...</p> <p>c) Sampling stick (synonym: stick trier, sleeve type trier). The sampling stick consists of an inner tube which fits loosely inside an outer tube but tightly enough so that seed or impurities do not slip between them. The outer tube has a solid pointed end. Both tubes have slots cut into their walls so that the cavity of the inner tube can be opened and closed by twisting the tubes against each other. The sampling stick may be used horizontally, diagonally or vertically. However, when used vertically the sampling stick must have partitions dividing the instrument into a number of compartments. The minimum ...</p>	<p>2.5.1.3 Taking primary samples</p> <p>...</p> <p>c) Sampling stick (synonym: e.g. stick trier, sleeve type trier, <u>spiral trier</u>). The sampling stick consists of an inner tube which fits loosely inside an outer tube, but tightly enough so that seed or impurities do not slip between them. The outer tube has a solid pointed end. Both tubes have slots cut into their walls so that the cavity of the inner tube can be opened and closed by twisting the tubes against each other. The sampling stick may be used horizontally, diagonally or vertically. However, when used vertically the sampling stick must have partitions dividing the instrument into a number of compartments. <u>For seeds of a size smaller than <i>Triticum aestivum</i>, a sampling stick with a spiral arrangement of slots and no compartments may also be used vertically.</u> The minimum ...</p> <p>NEW editorially changed version</p> <p><u>The spiral trier has slots in a spiral arrangement for their subsequent opening from the tip to the handle and may only be used for seeds of a size smaller than <i>Triticum aestivum</i></u></p> <p>However, when used vertically the sampling stick must <u>either</u> have partitions dividing the instrument into a number of compartments <u>or have slots in a spiral arrangement.</u> The minimum ...</p>

<i>d) Nobbe trier. ...</i>	<i>d) Nobbe trier. ...</i>
	<p><u><i>e) Cargo sampler (bulk sampler). The cargo sampler can be used for seeds smaller than seeds of <i>Triticum aestivum</i>. The cargo sampler consists of a special type of chamber that is fixed to a shaft. The lower part of the chamber is cone-shaped with a pointed end. To reach a greater depth, the shaft may be lengthened by screwing on successive extensions. There is a closing system in the chamber that may be a collar on the outside of the instrument, a wing connected to a door or a valve with a spring. Some cargo samplers can be closed before they are drawn back from the sampling position; others cannot be closed, so that the filled chamber is open during withdrawal. For all species, the minimum inside diameter can be about 35 mm and the depth 75 mm. When using the cargo sampler, insert it in the closed position into the container, gently push it vertically into the seed so that the point reaches the required position, pull the cargo sampler back about 10 cm or turn it (depending on the closing system), agitate it slightly to allow it to fill completely, gently close if possible and withdraw it and empty the primary sample into a container. Care should be exercised in closing the cargo sampler, so that the seeds are not damaged.</i></u></p>
<i>e) Sampling by hand. This method...</i>	<i>f) Sampling by hand. This method ...</i>

Vote to accept item:	Yes votes	No votes	Result
C.2.2			accepted

Chapter 3: The Purity Analysis

C.3.1. Reporting purity sample weight

This proposal originates from and is supported by the Purity Committee.

CURRENT VERSION	PROPOSED VERSION
<p>3.7 Reporting results</p>	<p>3.7 Reporting results</p> <p><u>When the weight of the working sample tested for purity equals or is no more than 10% higher than the weight specified in Table 2A, column 4 (Purity analysis), no statement regarding the weight of the working sample is required on the ISTA Certificate.</u></p>
<p>When the weight of the working sample tested for purity deviates from that prescribed in Table 2A, column 4, the actual weight examined must be reported on the certificate.</p> <p>...</p>	<p>When the weight of the working sample tested for purity deviates from that <u>specified</u> in Table 2A, column 4, the actual weight <u>of the working sample weighed according to 3.5.1</u> must be reported on the <u>ISTA Certificate using one of the following, as applicable:</u></p> <p><u>a) When testing a weight that exceeds by 10% the weight specified in Table 2A, column 4, report under other determinations as:</u></p> <p>‘Weight of purity working sample examined =g’</p> <p><u>‘Purity:g’</u></p> <p><u>b) When testing a weight estimated to contain 2500 seed units, report under other determinations as:</u></p> <p>‘Weight of purity working sample examined =g (estimated to contain 2500 seeds)’</p> <p><u>‘Purity:g (approx. 2500 seeds)’</u></p> <p><u>c) When the submitted sample received for purity testing weighs less than the weight in Table 2A, column 4, report under other determinations and use the current statement, according to 2.5.4.4:</u></p> <p><u>‘The submitted sample weighed only ... g and is not in accordance with the International Rules for Seed Testing.’</u></p> <p>...</p>

Vote to accept item:	Yes votes	No votes	Result
C.3.1			accepted

Chapter 4: Determination of Other Seeds by Number

C.4.1. Reporting sample weight of Other Seeds by Number

This proposal originates from and is supported by the Purity Committee.

CURRENT VERSION	PROPOSED VERSION
<p>4.7 Reporting results</p> <p>The actual weight of seed examined, and the scientific name and number of seeds of each species sought and found in this weight shall be reported on the <i>ISTA International Seed Analysis Certificate</i>, notwithstanding that the result may in addition be expressed in some other way (e.g. number of seeds of each species or category of seeds per kilogram).</p> <p>...</p>	<p>4.7 Reporting results</p> <p>The weight <u>as indicated in Table 2A, column 5 'Other seeds by number'</u>, and the scientific name and number of seeds of each species sought and found in this weight, <u>must</u> be reported on the ISTA Certificate except <u>either when this weight is more than 5% higher than the weight in Table 2A, column 5 'Other seeds by number', or when a 'Reduced' test is carried out, or at the request of the sender.</u></p> <p>In these cases the actual working sample <u>weight weighed according to 3.5.1, must be indicated.</u></p> <p>,notwithstanding that the result may In addition <u>the result may</u> be expressed in some other way (e.g. number of seeds of each species or category of seeds per kilogram).</p>

Vote to accept item:	Yes votes	No votes	Result
C.4.1			accepted

Chapter 5: The Germination Test

C.5.1. Top of paper covered with sand (TPS) method for for *Glycine max*, *Helianthus annuus*, *Phaseolus vulgaris* and *Zea mays*

This method has been validated for these species. For details of the research supporting this proposal, see the validation report or contact the ISTA Secretariat.

This proposal originates from and is supported by the Germination Committee.

Table 5A Part 1 Agricultural and vegetable seeds: modified entries for *Glycine max*, *Helianthus annuus*, *Phaseolus vulgaris* and *Zea mays*

PROPOSED VERSION

Species	Prescriptions for:				Additional directions including recommendations for breaking dormancy
	Substrate	Temperature (°C)	First count (d)	Final count (d)	
1	2	3	4	5	6
<i>Glycine max</i>	BP; TPS ; S	20–30; 25	5	8	–
<i>Helianthus annuus</i>	BP; TPS ; S; O	20–30; 25; 20	4	10	Preheat; prechill
<i>Phaseolus vulgaris</i>	BP; TPS ; S	20–30; 25; 20	5	9	–
<i>Zea mays</i>	BP; TPS ; S	20–30; 25; 20	4	7	–

Vote to accept item:	Yes votes	No votes	Result
C.5.1			accepted

C.5.2. Between Paper (BP) method for *Brassica* spp. and *Sinapis alba*

The comparative tests have been completed and a validation report submitted. This report has been approved, with minor revisions recommended by the Technical Reviewers. The proposal is supported by the Germination Committee.

In Table 5A Part 1 under column 2 ‘substrate’, ‘BP’ should be added in addition to the substrates already listed there for the following species:

Brassica napus; *Brassica napus* var *napobrassica*; *Brassica nigra*; *Brassica oleracea*; *Brassica perviridis*; *Brassica rapa* and *Sinapis alba*.

Table 5A Part 1 Agricultural and vegetable seeds: modified entries for *Brassica* spp. and *Sinapis alba*

PROPOSED VERSION

Species	Prescriptions for:				Additional directions including recommendations for breaking dormancy
	Substrate	Temperature (°C)	First count (d)	Final count (d)	
1	2	3	4	5	6
<i>Brassica napus</i>	BP : TP	20–30; 20	5	7	Prechill; KNO ₃
<i>Brassica napus</i> var. <i>napobrassica</i>	BP : TP	20–30; 20	5	14	Prechill
<i>Brassica nigra</i>	BP : TP	20–30; 20	5	10	Prechill; KNO ₃
<i>Brassica oleracea</i>	BP : TP	20–30; 20	5	10	Prechill; KNO ₃
<i>Brassica perviridis</i>	BP : TP	20–30; 20	5	7	Prechill
<i>Brassica rapa</i>	BP : TP	20–30; 20	5	7	Prechill; KNO ₃
<i>Sinapis alba</i>	BP : TP	20–30; 20	3	7	Prechill

Vote to accept item:	Yes votes	No votes	Result
C.5.2			accepted

C.5.3. Organic Growing Media (O) method for *Vicia faba*

The comparative tests have been completed, and a preliminary analysis of the results supports the use of organic growing media for *Vicia faba* germinations. A validation report has been completed and approved. The proposal originates from and is supported by the Germination Committee.

In Table 5A Part 1, under column 2 'substrate', 'O' should be added in addition to the substrates already listed there for *Vicia faba*.

Table 5A Part 1 Agricultural and vegetable seeds: modified entries for *Vicia faba*

PROPOSED VERSION

Species	Prescriptions for:				Additional directions including recommendations for breaking dormancy
	Substrate	Temperature (°C)	First count (d)	Final count (d)	
1	2	3	4	5	6
<i>Vicia faba</i>	BP; S; <u>O</u>	20	4	14	Prechill

Vote to accept item:	Yes votes	No votes	Result
C.5.3			accepted

Chapter 7: Seed Health Testing

C.7.1. Addition of new method. 7-026: Detection of Squash Mosaic Virus, Cucumber Green Mottle Mosaic Virus and Melon Necrotic Spot Virus in Cucurbits

Crop: Cucurbits.

Pathogen: Squash Mosaic Virus (SqMV), Cucumber Green Mottle Mosaic Virus (CGMMV) and Melon Necrotic Spot Virus (MNSV)

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Revision History: Version 1.0, 1 September 2007.

Background

SqMV, CGMMV and MNSV are seed-transmissible viruses of cucurbits, and therefore the detection of these viruses in seeds of cucurbits is an important tool in control strategies. Enzyme-linked immunosorbent assay (ELISA) is widely used for the detection of plant viruses (Clark and Adams, 1977). ELISA methods have also been described for the detection of PEBV and PSbMV (Hamilton and Nichols, 1978; Van Vuurde and Maat, 1985, Maury *et al.*, 1987).

The method, using ground seed and a DAS-ELISA, can be used to simultaneously detect SqMV, CGMMV and MNSV in a single extract. Note that the extract is tested in three microtiter plates, one each for SqMV, CGMMV and MNSV. The theoretical detection limit is one infested seed in 100 seeds. To ensure a 95% probability that infestations of 0.15% or higher are detected it is necessary to test 20 subsamples of 100 seeds each. ELISA positive seed lots will not necessarily lead to seed transmission. Seed transmission of these viruses can be monitored in a grow-out, but this technique is time consuming and rather laborious.

Validation studies

Koenraad, H.M.S. and Remeus, P.M. (2007)

Copies are available by E-mail from ista.office@ista.ch; by mail from the ISTA Secretariat.

Please send comments, suggestions or reports of problems relating to this method to the ISTA Seed Health Committee, c/o ISTA Secretariat.

International Seed Testing Association (ISTA)

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Switzerland

Safety precautions

Make sure you are familiar with the hazardous nature of the materials being used and take appropriate safety precautions, especially during preparation of buffers, grinding, autoclaving, and weighing out of ingredients. It is assumed that persons carrying out this procedure are in a microbiological laboratory and are familiar with the principles of Good Laboratory Practice, Good Microbiological Practice, and aseptic technique. Dispose of all waste materials in an appropriate way (e.g. autoclave, disinfect) and in accordance with local health, environmental and safety regulations.

Treated seed

Dry heat is often used for the control of CGMMV in contaminated seed lots. ELISA does not discriminate between infectious and non-infectious CGMMV, and a positive reaction in this test may cause a non CGMMV-infected seed lot to be unnecessarily discarded.

This method has not been validated for the determination of SqMV, CGMMV or MNSV in seed treated with crop protection products or with heat. Although ELISA is compatible with some seed treatment chemicals (Pataky *et al.*, 2004), seed treatments may affect the performance of this test. This method must only be performed on untreated seed.

Sample and subsample size

The sample (total number of seeds tested) and subsample size to be tested depend on the desired tolerance standard (maximum acceptable number of seeds infested) and detection limit (theoretical minimum number of pathogen propagules per seed which can be detected). In any case the subsample size should not exceed 100 seeds.

Materials

Reference material: SqMV-, CGMMV- and MNSV-infested seeds or standardized reference material (flour of seeds containing SqMV, CGMMV and MNSV)

Microtiter plates: 96-well plates suitable for ELISA (CCP)

Antisera: suitable for detection of SqMV-, CGMMV- and MNSV-infested seeds (e.g. PRI, Wageningen, the Netherlands)

Balance: capable of weighing to the nearest 0.01 g

pH meter: capable of being read to the nearest 0.1 pH unit

Automatic pipettes: capable of pipetting to the nearest 0.001 mL

Grinder: capable of grinding seeds to fine flour (e.g. Retsch Grindomix GM 200)

Incubator: capable of maintaining a temperature of 4 ± 2 °C

Incubator: capable of maintaining a temperature of 37 ± 2 °C

ELISA plate reader

Tubes: 10 ml (LDPE)

Vortex: suitable for vortexing 10 ml tubes

Sample preparation

This can be done in advance of the assay.

It is vital to exclude any possibility of cross-contamination between seed samples. It is therefore essential to clean all equipment, surfaces, containers, hands, etc. both before and after handling each sample.

Count the number of seeds in a known weight. Calculate the estimated thousand-seed weight as:

$$\text{Estimated thousand-seed weight} = \frac{\text{Wt of seed}}{\text{No of seed}} \times 1000$$

Based on the estimated thousand-seed weight, weigh out sub-samples of the required size into new and clean bags or containers.

Method

[Critical control points are indicated by CCP]

1. Coating of ELISA plates

1.1. Add appropriate (as defined by supplier) dilution of SqMV, CGMMV and MNSV-coating serum to coating buffer to obtain coating solution. Be sure that the

antisera are not only suitable for diagnostics but also for the detection of viruses in seed extracts (CCP).

1.2. Coat one plate with 100 μ l of SqMV-coating solution per well. Coat a second plate with 100 μ L of CGMMV-coating solution per well. Coat a third plate with 100 μ L of MNSV-coating solution per well.

1.3. Cover ELISA plates with lid or wrap with plastic to minimize evaporation.

1.4. Incubate plates overnight at 4 ± 2 °C or as defined by the supplier.

2. Extraction of virus from the seed and incubation of extracts

2.1. Count or weigh 20 x 100 seeds per subsample.

2.2. Grind each subsample to fine flour in a grinder (CCP).

2.3. From each subsample, weigh out 0.5 g of flour and transfer to a 10 mL tube.

2.4. Add 5 mL of extraction buffer to each tube.

2.5. Vortex each tube for 15 s. Allow extract to settle for at least 5 min on the bench to facilitate pipetting.

2.6. Remove coating solution from ELISA plates and immediately rinse plates thoroughly, three times, using PBS/Tween 20 to remove residues (CCP).

2.7. Immediately after rinsing, pipette 100 μ L of each seed extract into a well. Use two wells per subsample.

2.8. Add positive and negative controls to each ELISA plate. Use at least two dilutions for the positive control: one "low" dilution that gives a high extinction and a "high" dilution that gives an extinction just above the detection threshold (CCP). Negative controls must include a healthy seeds extract.

2.9. Cover plates with lid or wrap with plastic to minimize evaporation and incubate overnight at 4 ± 2 °C or as defined by the supplier.

3. Incubation of conjugate

3.1. Prepare appropriate dilution of SqMV-, CGMMV- and MNSV-conjugated antiserum using conjugate buffer as defined by the supplier.

3.2. Remove seed extracts from ELISA plates and rinse plates three times with washing buffer PBS/Tween 20 to remove residues of seed extract (CCP).

3.3. Immediately after rinsing, add 100 μ L of diluted conjugate to each well of the ELISA plate.

3.4. Cover plates with lid or wrap with plastic to minimize evaporation and incubate for 3 h at 37 ± 2 °C or as defined by the supplier.

4. Addition of substrate to ELISA plates

4.1. Prepare substrate solution (10 mg para-nitrophenyl phosphate in 20 mL of substrate buffer).

4.2. Remove conjugate from ELISA plates and rinse thoroughly 3 times by hand using washing buffer PBS/Tween 20. Alternatively use a reliable washing device (CCP).

4.3. Add 100 μ L of substrate solution to each well.

4.4. Incubate in the dark for 2 h at 20 ± 2 °C or as defined by the supplier.

4.5. Measure extinction value (A_{405}) with ELISA plate reader. (See General Methods, point 2.)

General methods (common to many test procedures)

1. Grinding seeds

Grind each sub sample of 100 seeds to give a fine flour. Be sure to use a grinder that can be cleaned thoroughly since cross-contamination is likely during the grinding step.

2. Recording of ELISA extinction

Record the results for all wells in the microtiter plate. Check first whether the positive and negative controls meet the expectations since otherwise the results of the test are invalid and the test must be repeated.

It is recommended to use a negative-positive threshold of 2.5 times the background of healthy samples.

3. Reporting results

The result of a seed health test should indicate the scientific name of the pathogen and the test method used. When reported on an ISTA Certificate, results are entered under *Other Determinations*.

In the case of a negative result (pathogen not detected in any of the subsamples), the results should be reported in terms of the tolerance standard and detection limit. The tolerance standard depends on the total number of seeds tested, n , and is approximately $3/n$ ($P=0.95$) (Roberts *et al.*, 1993);

In the case of a positive result, the report should indicate the number of positive subsamples out of the total number tested and the sample size or the maximum likelihood estimate of the proportion of infested seeds.

Quality assurance

Critical Control Points [Identified by CCP in the methods]

Using different types of microtiter plates can influence sensitivity.

The quality of antisera from different sources is known to be variable. Therefore, be sure that the antisera are not only suitable for diagnostics but also for the detection of viruses in seed extracts. Step 1.1.

The use of fine flour will improve the efficacy of extraction. Therefore, grind seeds for 20 s at 10 000 rpm to get a fine flour. Note that some blades easily get blunt and therefore grind less efficiently in time. Step 2.2.

Coated microtiter plates will lose activity rapidly when they are left to dry on the bench for some time. Therefore, limit the time as much as possible that empty microtiter plates are left on the bench. Step 2.6.

The use of appropriate positive and negative controls is very important to validate the result. Be sure that, apart from a “high” positive control, there is always a “low” positive control in each plate. Step 2.8.

Poorly washed microtiter plates between the different incubation steps often cause high backgrounds in ELISA. Washing can be done by hand using PBS/Tween 20 or with a washing device. Thoroughly washing microtiter plates is very critical in several steps (2.6, 3.2 and 4.2) in the ELISA, particularly after the incubation with the conjugated antiserum. Step 4.2.

Coating buffer (pH 9.6)

Na₂CO₃: 1.59 g

NaHCO₃: 2.93 g

Extraction buffer (0.05 M, pH 7.4)

NaCl: 8.0 g

KH₂PO₄: 1.0 g

Na₂HPO₄·12H₂O: 14.5 g

Ovalbumine (Grade II): 2.0 g

Tween 20: 10.0 mL

PVP (ELISA grade, mol. wt. 10 000): 20.0 g

Conjugate buffer (0.05 M, pH 7.4)

NaCl: 8.0 g

KH₂PO₄: 1.0 g

Na₂HPO₄·12H₂O: 14.5 g

Tween 20: 0.5 mL

PVP (ELISA grade, mol. wt. 10 000): 20.0 g

BSA (ELISA grade, e.g. BSA fraction 5): 5.0 g

Substrate buffer (pH 9.6)

Diethanolamine: 97 mL

HCl (32%): 15 mL

Washing buffer PBS/Tween 20 (0.05 M, pH 7.4)

NaCl: 8.0 g

KH₂PO₄: 1.0 g

Na₂HPO₄·12H₂O: 14.5 g

Tween 20: 1.5 mL

Preparation of individual buffers

1. Weigh or measure out all ingredients into a suitable container.
2. Dissolve/mix ingredients and adjust volume to 1000 mL with distilled/de-ionized water.
3. Check the pH with a pH meter and adjust if necessary.

Storage of buffers

Store buffers as mentioned above at 4 ± 2 °C. Use them within a month after preparation.

References

Clark, M.F. and Adams, A.N. (1977) Characteristics of the microplate method of enzyme-linked immunosorbent assay for the detection of plant viruses. *Journal of General Virology* 34: 475-483.

Koenraad, H.M.S. and Remeus, P.M. (2007) Proposal for a new method for the detection of Cucumber Green Mottle Mosaic Virus (CGMMV), Melon Necrotic Spot Virus (MNSV) and Squash Mosaic Virus (SqMV) in Cucurbits with DAS-ELISA. *ISTA Method Validation Report* 6, xx pp. (not published yet).

Hamilton, R.I. and Nichols, C. (1978) Serological methods for detection of pea seed-borne mosaic virus in leaves and seeds of *Pisum sativum*. *Phytopathology* 68: 539-543.

Maury, Y., Bossennec, J.M., Boudazin, G., Hampton, R.O., Pietersen, G. and Maguire, J. (1987) Factors influencing ELISA evaluation of transmission of pea seed-borne mosaic virus in infected pea seed: seed-group size and seed decortication. *Agronomie* 7: 225-230.

Pataky, J. K., Block, C. C., Michener, P. M., Shepherd, L. M., McGee, D. C., and White, D. G. 2004. Ability of an ELISA-based seed health test to detect *Erwinia stewartii* in maize seed treated with fungicides and insecticides. *Plant Disease* 88: 633-640.

Roberts, S.J., Phelps, K., Taylor, J.D. and Ridout, M.S. (1993) Design and interpretation of seed health assays. In: Sheppard, J.W., (Ed.) *Proceedings of the first ISTA Plant Disease Committee Symposium on Seed Health Testing, Ottawa, Canada*. Agriculture Canada, Ottawa, Canada. Pp 115–125.

Van Vuurde, J.W.L. and Maat, D.Z. (1985) Enzyme-linked immunosorbent assay (ELISA) and disperse-dye immuno assay (DIA): comparison of simultaneous and separate incubation of samples and conjugate for the routine detection of lettuce mosaic virus and pea early-browning virus in seeds. *Netherlands Journal of Plant Pathology* 91: 3-13.

Vote to accept item:	Yes votes	No votes	Result
C.7.1			accepted

Chapter 9: Determination of Moisture Content

C.9.1. Change to 9.1.6 Calculation and expression of Results

If the rounding is done to early samples that should have been retested are not and some samples that do not require retesting are retested.
 This proposal is submitted and supported by the Moisture Committee.

CURRENT VERSION	PROPOSED VERSION
<p><i>9.1.6.1 Constant-temperature oven methods</i></p> <p>The moisture content as a percentage by weight must be calculated to one decimal place by means of the following formula: ...</p>	<p><i>9.1.6.1 Constant-temperature oven methods</i></p> <p>The moisture content as a percentage by weight must be calculated to three decimal places for each replicate by means of the following formula: ...</p>
<p><i>9.1.6.2 Tolerances</i></p> <p>Report the result as the arithmetic mean of the duplicate determinations carried out on a sample if the difference between the two determinations does not exceed the 0.2% tolerance. For tree and shrub...</p>	<p><i>9.1.6.2 Tolerances</i></p> <p><u>The difference must be calculated to three decimal places and then rounded off to one decimal place. The maximum difference between the two replicates must not exceed 0.2% after rounding from three to one decimal place. Otherwise, repeat the determination in duplicate. The reported result is the arithmetic mean of the results for two working samples (see 9.1.7).</u> For tree and shrub....</p>

Vote to accept item:	Yes votes	No votes	Result
C.9.1			accepted

C.9.2. Change to 9.1.4.3 Containers

The lid is present only to prevent contamination of the sample from other material and the time taken to fit a tight lid on a large number of containers may introduce errors into the moisture determination.

This proposal is submitted and supported by the Moisture Committee.

CURRENT VERSION	PROPOSED VERSION
<p><i>9.1.4.3 Containers</i></p> <p>...this, glass dishes, with sufficiently tight-fitting lids, and an ...</p>	<p><i>9.1.4.3 Containers</i></p> <p>...this, glass dishes, with lids, and an ...</p>

Vote to accept item:	Yes votes	No votes	Result
C.9.2			accepted

C.9.3. Addition to 9.1.5.1 General Directions and Precautions

Some laboratories are not retaining moisture samples after moisture determination. This does not allow for re-testing in cases where errors are detected, in response to complaints or for other purposes. This has been recorded as a non-conformity for laboratories during audits and the requirement in ISTA Accreditation Standard that samples be stored for one year is not appropriate for moisture samples.

The Moisture Committee has discussed this problem and recommends a Rule change proposal.

The Rule change proposal is the following paragraph be added to the end as a fifth paragraph of 9.1.5.1.

This proposal is submitted and supported by the Moisture Committee.

PROPOSED VERSION	PROPOSED VERSION
<p><i>9.1.5.1 General directions and precautions</i></p> <p>...</p>	<p><i>9.1.5.1 General directions and precautions</i></p> <p>...</p> <p><u>The remaining submitted sample after determination of moisture must be stored under controlled conditions in a moisture proof container for a period defined by the laboratory, but long enough to ensure the possibility for re-testing in case of errors.</u></p>

Vote to accept item:	Yes votes	No votes	Result
C.9.3			accepted

C.9.4. Clarify 9.1.5.6 Predrying

After predrying it is not clear how the working sample is drawn for the moisture determination.

CURRENT VERSION	PROPOSED VERSION
<p><i>9.1.5.6 Predrying</i></p> <p>...in a warm place. After predrying, the subsamples are reweighed in their containers to determine the loss in weight. Immediately thereafter the two partly dried subsamples are separately ground and the moisture determined as prescribed in 9.1.5.3.</p>	<p><i>9.1.5.6 Predrying</i></p> <p>...in a warm place.</p> <p>((New paragraph))</p> <p>After predrying, the subsamples are reweighed in their containers to determine the loss in weight. Immediately thereafter the two partly dried subsamples are separately ground. <u>One working sample is drawn from each subsample. Drawing of the working sample should be in accordance with 9.1.5.2.</u> The moisture <u>is</u> determined as prescribed in 9.1.5.3.</p>

Vote to accept item:	Yes votes	No votes	Result
C.9.4			accepted

Chapter 10: Weight Determination

C.10.1. Reporting method used for weight determination

This proposal originates from and is supported by the Purity Committee.

CURRENT VERSION	PROPOSED VERSION
<p>10.7 Reporting results</p> <p>The result must be reported under ‘Other Determinations’ on an <i>ISTA International Seed Analysis Certificate</i> as calculated according to 10.6.</p>	<p>10.7 Reporting results</p> <p>The method used (‘Counting the entire working sample’ or ‘Counting replicates’) and the result as calculated according to 10.6 must be reported under ‘Other Determinations’.</p>

Vote to accept item:	Yes votes	No votes	Result
C.10.1			accepted

Chapter 15: Seed Vigour Testing

C.15.1. *Phaseolus vulgaris* validated for conductivity test

The conductivity test is currently validated for *Pisum sativum*. This test also identifies differences in seed vigour in *Phaseolus vulgaris* and comparative tests have shown that the method is repeatable and reproducible (see Method Validation Report). *Phaseolus vulgaris* is therefore proposed as a second species to which the conductivity test can be applied.

CURRENT VERSION	PROPOSED VERSION
15.8.1 Conductivity test for <i>Pisum sativum</i>	15.8.1 Conductivity test
<p><i>15.8.1.1 Principle</i></p> <p>...</p> <p>Conductivity measurement of the soak water in which a bulk sample of pea seeds has been steeped...</p>	<p><i>15.8.1.1 Principle</i></p> <p>...</p> <p>Conductivity measurement of the soak water in which a bulk sample of seeds has been steeped...</p>
<p><i>15.8.1.2 Scope and field of application</i></p> <p>The conductivity test offers a vigour test for <i>Pisum sativum</i> which relates to the field emergence of seed lots. The test does not apply to the so-called 'petit pois' varieties.</p>	<p><i>15.8.1.2 Scope and field of application</i></p> <p>The conductivity test offers a vigour test for <i>Pisum sativum</i> (<u>Garden peas only</u>) and <u><i>Phaseolus vulgaris</i></u> which relates to the field emergence of seed lots. The test does not apply to <u>Field peas or</u> the so-called 'petit pois' varieties <u>of <i>Pisum sativum</i>, Garden peas.</u></p>
<p><i>15.8.1.4 Preparation of the sample before measuring conductivity</i></p> <p>...</p> <p>Experience indicates that to raise the moisture content of pea seeds having an initial moisture content.....</p>	<p><i>15.8.1.4 Preparation of the sample before measuring conductivity</i></p> <p>...</p> <p>Experience indicates that to raise the moisture content of seeds <u>with</u> an initial moisture content.....</p>

Vote to accept item:	Yes votes	No votes	Result
C.15.1			accepted

C.15.2. Calculation and expression of results in Sections 15.8.1.7 and 15.8.2.7

CURRENT VERSION	PROPOSED VERSION
<p><i>15.8.1.7 Calculation and expression of results</i></p> <p>...</p> <p>If the mean conductivity of the four replicates differs by more than the tolerance value (see Table 15B) for that conductivity, the lot should be re-tested.</p> <p>...</p>	<p><i>15.8.1.7 Calculation and expression of results</i></p> <p>...</p> <p>If the mean conductivity of the four replicates differs by more than the tolerance value (see Table 15B) for that conductivity, the lot <u>must</u> be re-tested. <u>If the second result is compatible with the first (i.e. the difference does not exceed the tolerance indicated in Table 15C), the average of the two tests must be reported.</u></p> <p>...</p>
<p><i>15.8.2.7 Calculation and expression of results</i></p> <p>...</p> <p>If the two 100 seed replicates differ by more than the maximum tolerance value for AA germination shown in Table 15E, the seed lot should be re-tested.</p> <p>...</p>	<p><i>15.8.2.7 Calculation and expression of results</i></p> <p>...</p> <p>If the two 100-seed replicates differ by more than the maximum tolerance value for AA germination shown in Table 15E, the seed lot <u>must</u> be re-tested. <u>If the second result is compatible with the first (i.e. the difference does not exceed the tolerance indicated in Table 15F), the average of the two tests must be reported.</u></p> <p>...</p>

Vote to accept item:	Yes votes	No votes	Result
C.15.2			accepted

C.15.3. New validated vigour Test: controlled deterioration (CD) test for *Brassica* spp.

There is currently no vigour test in the ISTA Rules for any small seeded vegetable species. The results of the controlled deterioration (CD) test have been related to the emergence (in the field and glasshouse) and storage potential of a number of vegetable species. A series of comparative tests (see Method Validation report) has established the repeatability and reproducibility of the CD test as applied to *Brassica* species. The controlled-deterioration test is therefore proposed as an addition to Chapter 15: Seed Vigour Testing.

This proposal originates from and is supported by the Vigour Committee.

PROPOSED VERSION

15.8.3 Controlled deterioration test for *Brassica* spp.

15.8.3.1 Principle

The controlled deterioration (CD) test exposes seeds to a high temperature while at a specified and constant raised seed moisture content. These conditions cause seeds to deteriorate, or age, rapidly. The moisture content of a seed sample is raised before the seeds are placed at the raised temperature, thus ensuring that all samples tested are exposed to a predetermined degree of deterioration during the test. High vigour seeds retain a high germination after deterioration, while the germination of low vigour seeds is reduced.

15.8.3.2 Scope

The CD test provides a vigour test for *Brassica* species which relates to both field emergence and storage potential. This test has not been validated on treated seed. Seed treatments may affect the performance of the method.

15.8.3.3 Apparatus

Water bath: this must have a temperature range to include 45 °C and be accurate to ±0.5 °C. Alternatively, an incubator giving the same degree of accuracy could be used. A water bath maintains the required temperature more uniformly when a number of tests are being conducted. If an incubator is used, care must be taken to ensure that there are no differences in temperature within it, especially when many tests are being conducted.

Analytical balance: capable of weighing to the nearest 0.0001g.

Aluminium foil packets: suitable for holding 100 seeds in a single layer, with at least 3 cm space above the seeds after the packet is sealed. Packets approximately 5–6 cm deep and 7–10 cm wide are suitable. Packets must be impermeable to moisture once sealed. A range of packets are available, but example specifications are: paper (white kraft 60 g) covered by aluminium foil of 8 µm and polyethylene film of 40 µm.

Packet sealer: any instrument capable of producing a watertight seal to the foil packets is suitable.

Filter paper or germination paper: e.g. as used in the germination test.

Containers: to hold seeds and filter and germination papers during the procedure of raising the seed moisture content. A range of dishes or containers may be suitable, e.g. 9 cm Petri dishes, germination boxes.

Refrigerator or cooled incubator: capable of maintaining 7 ± 2 °C.

Germination test facilities: germination tests are conducted using the methods

and test conditions described in Chapter 5 of the ISTA Rules.

Moisture content test facilities: moisture content tests are conducted according to Chapter 9 of the ISTA Rules.

15.8.3.4 Controlled deterioration procedure

15.8.3.4.1 Raising and equilibration of seed moisture content

Determine the initial moisture content of the submitted sample according to Chapter 9 of the ISTA Rules. This is subsequently referred to as the initial seed moisture content. To adjust the seed moisture content, mix the fraction of pure seed thoroughly and draw randomly four replicates of at least 100 seeds. Weigh each replicate to four decimal places. Raise the seed moisture content of each replicate to 20%. The weight of seed at this moisture content is calculated as:

$$\text{Weight of replicate at 20\% mc} = (\text{initial seed weight}) \times \frac{(100 - \text{initial seed mc})}{(100 - \text{desired mc})^*}$$

*i.e. 80

mc = moisture content

Calculate the required weight to four decimal places. The acceptable required weight is then correct to three decimal places.

Place each of the four replicates to imbibe on a moist germination/filter paper, placed in a suitable container. There should be no free water on the surface of the paper. If 9 cm germination papers are used, 3–4 ml water per paper usually gives a moist but not wet paper. Use the same volume of water for a standard amount of paper on each test occasion.

Weigh seeds regularly to determine when they reach the required moisture content. Weighing must be accurate and correct to three decimal places. Seeds may begin to reach the required moisture content after 1.25–1.5 h depending on the seed lot, laboratory temperature and relative humidity.

Once seeds have reached the required weight, place each replicate immediately into an aluminium foil packet. The seeds can lose moisture rapidly at this stage, so speed is essential. Flatten the packets with the edge of the hand to remove air, and heat-seal the packets approximately 3 cm above the level of the seeds.

Place the sealed packets at 7 ± 2 °C for 24 h.

15.8.3.4.2 Deterioration of the seed

Place the four replicate packets of each seed lot into a water bath at 45 °C for 24 h ± 15 min. When the packets have been removed from the water bath, cool the seeds within the packets by placing the packets under cold running water for 5 min.

15.8.3.4.3 Testing for germination

A CD germination test should be set up using the deteriorated seed within 30 min of removing the seeds from the water bath. Set up the CD germination test using 100 seeds from each replicate packet. The seeds may be divided into subreplicates for the germination test. The germination conditions for a CD germination test are the same as those outlined for the standard germination test for *Brassica* spp. in Chapter 5 of the ISTA Rules.

15.8.3.5 Calculation and expression of results

The total germinated ~~tion~~ percentage (normal plus abnormal seedlings) and percentage of normal seedlings are noted in each replicate. The result of the CD test

is calculated as the average of the four 100-seed replicates, as described for the standard germination test in Chapter 5. Both the total germinated percentage and the percentage of normal seedlings are reported.

15.8.3.6 Reporting results
 The result of a seed vigour test using the controlled deterioration test method must be reported under ‘Other determinations’ as follows:

- Results are expressed as a percentage, calculated to the nearest whole number (5.8.1), and stated as of ‘Total germinated (normal plus abnormal seedlings) ...%’ and ‘Normal germination seedlings...%’. If the result for either of these is found to be zero, it must be reported as ‘0’.

The results must be accompanied by a statement of the specific variables used in the test (raised seed moisture content, deterioration period and temperature)

Controlled deterioration vigour test
 Total germinated seeds (normal plus abnormal seedlings)%
 Normal seedlings%

Vote to accept item:	Yes votes	No votes	Result
C.15.3			accepted

C.15.4. Addition of a definition to clarify the unit of assessment used at the end of a controlled deterioration test

This proposal is required if proposal C.15.3 is accepted.

CURRENT VERSION	PROPOSED VERSION
<p><i>15.2.4 Additional definitions</i></p> <p>Seedling emergence: ...</p> <p>Seedling performance: ...</p>	<p><i>15.2.4 Additional definitions</i></p> <p>Seedling emergence: ...</p> <p>Seedling performance: ...</p> <p>Total germinated seeds tion <u>tion percentage:</u> <u>the sum of the proportion of seedlings classified as normal and abnormal at the end of a controlled deterioration (CD) germination test conducted under the conditions and within the period specified in Chapter 5, Table 5A.</u></p>

Vote to accept item:	Yes votes	No votes	Result
C.15.4			accepted

C.15.5. Change to list of validated tests; Modification of Table 15A

CURRENT VERSION

Vigour test	Crop	Species
Conductivity	Garden pea	<i>Pisum sativum</i>
Accelerated ageing	Soya bean, soybean	<i>Glycine max</i>

PROPOSED VERSION

Vigour test	Species
Conductivity	<i>Pisum sativum</i> (<u>Garden pea only, excluding petit-pois varieties</u>) <u><i>Phaseolus vulgaris</i></u>
Accelerated ageing	<i>Glycine max</i>
<u>Controlled deterioration</u>	<u><i>Brassica spp.</i></u>

Vote to accept item:	Yes votes	No votes	Result
C.15.5			accepted

With this proposal accepted, the Rules Chair declared the Rules proposals for this year to be concluded and thanked everyone for their active and constructive contributions. He also thanked the Secretariat for their big help behind the scenes and the Technical Committees for bringing these proposals to a successful change in the Rules.

The President thanked the Rules Chair for leading the audience through the voting process on Rules changes, and she also thanked the people involved bringing the proposals forward. Then she asked the audience to also thank the responsible people for the method validation reports that supported the rules changes proposed. [00:23:20]

(10) Consideration and Adoption of the Reports of the Technical Committees

The Technical Committees' work had been presented in the sessions held on 16 and 17 June. The relevant document *03-2009-OM Activity Report 2008 of the ISTA Committees* had been distributed to all ISTA Designated Authorities, ISTA Members and ISTA Observer Organisations for information two months prior to the ISTA Ordinary Meeting as well as being published on the website at least two months before the meeting.

The President of the Association asked each chairperson to come on stage to allow her to honour each of them for their excellent work and in recognition she handed over a present to each of them. The work and reports of each committee were accepted and approved by applause.

- Purity Committee - Ms. Maria-Rosaria Mannino, France (Chair)
- Germination Committee - Mr. Ronald Don, United Kingdom (Chair)
- Moisture Committee - Mr. Craig McGill, New Zealand (Chair)
- Tetrazolium Committee - Ms. Stefanie Krämer, Germany (Chair)
- Vigour Committee - Ms. Alison Powell, United Kingdom (Chair)

Seed Health Committee - Ms. Theresia Aveling, South Africa (Chair)
Variety Committee - Ms. Berta Killermann, Germany (Chair)
GMO Task Force - Mr. Christoph Haldemann, Switzerland (Chair)
Flower Seed Committee - Ms. Zita Ripka, Hungary (Chair)
Tree and Shrub Seed Committee - Ms. Zdenka Prochazkova, Czech Republic (Chair)
Editorial Board - Ms. Anne Bülow-Olsen, Denmark (Chief Editor)
Bulking and Sampling Committee - Ms. Leena Pietilä, Finland (Chair)
Statistics Committee - Mr. Jean-Louis Laffont, France (Chair)
Nomenclature Committee - Ms. Maria-Rosaria Mannino, France (Member)
Seed Storage Committee - Mr. Fabio Gorian, Italy (Member)
Advanced Technologies Committee - Mr. Johan van Asbrouck, Thailand (Chair)
Proficiency Test Committee - Mr. Günter Müller, Germany (Chair)
Rules Committee - Mr. Steve Jones, Canada (Chair)

Where a chair person was not present; the vice chair or a member of the committee received the recognition. [00:32:30]

(11) Announcement of the Place and Date of the next Ordinary Meeting

The Second Vice-President, Mr. Udo von Kröcher, gave a presentation on the city of Cologne, Germany which had been elected as venue for the 29th ISTA Congress to be held from June 16-22, 2010. He pointed out some places of interest of the city and continued to give valuable information on travel, hotels, registration fees and deadlines, and programme highlights, workshops and post-congress tours planned by the organising committee. For the Seed Symposium which is a significant part of the Congress, Ms. Alison Powell, Seed Symposium Convenor was invited to give a short update. [01:01:50]

As an information further away, the Secretary General announced that the Annual Meeting 2011 would be held in Japan from 13-16 June, and thanked the Japanese colleagues for this invitation. [01:03:47]

In addition, the Secretary General informed about another important event to be coming up shortly and in which ISTA was highly involved in: the Second World Seed Conference 2009. This conference has been collaboratively organised by FAO, OECD, UPOV, ISF and ISTA as a follow up on the First World Seed Conference held in Cambridge in 1999. The title of the conference was announced to be *Responding to the challenges of a changing world: The role of new plant varieties and high quality seed in agriculture*. The audience was informed that Session 2 *The importance of quality seed in agriculture* had been allocated to ISTA and would be chaired by Katalin Ertsey as President of ISTA. There would be presentations given by representatives of the Association:

- What is seed quality and how to measure it
by Mrs. Alison Powell
- The influence of seed quality on crop productivity
by Mrs. Rita Zecchinelli
- The evolution of seed testing
by Mr. Michael Muschick
- Raising seed quality: what is in the pipeline?
by Mr. Joost van der Burg
- Maintaining capacity in seed technology and seed testing
by Mr. John Hampton
- Harmonisation of seed testing for the facilitation of trade
by Mr. Joël Léchappé

The Secretary General concluded his short information in inviting everyone to be part of this important conference.

(12) Any other Business raised by a Member, of which notice in writing has been received by the Secretary General two months prior to the date of the Meeting

The Secretary General declared that no due notice of any other business to be discussed under this agenda point at this meeting had been received.
[01:12:49]

(13) Any other Business raised by consent of the Executive Committee

Four items were to be discussed:

- Document *08-2009-OM Final Draft Position Paper on ISTA's view regarding the units for the reporting of quantitative results on adventitious presence of seeds with specified traits in conventional seed lots*
- Report from the ISTA Seed Analyst Training Workshop
- Certificates for parts of lots (Request from the Netherlands)
- Process of collaboration between Technical Committees and the Advanced Technologies Committee

Final Draft Position Paper on ISTA's view regarding the units for the reporting of quantitative results on adventitious presence of seeds with specified traits in conventional seed lots (document 08-2009-OM)

The Secretary General recapped that the proposal as outlined in document *08-2009-OM Final Draft Position Paper on ISTA's view regarding the units for the reporting of quantitative results on adventitious presence of seeds with specified traits in conventional seed lots* was already discussed with the membership at the Ordinary Meeting 2008. Only a minor editorial change had been suggested then by a member, which had been implemented to this document up for vote.

The relevant document *08-2009-OM Final Draft Position Paper on ISTA's view regarding the units for the reporting of quantitative results on adventitious presence of seeds with specified traits in conventional seed lots* had been distributed to all ISTA Designated Authorities, ISTA Members and ISTA Observer Organisations for information two months prior to the ISTA Ordinary Meeting as well as being published on the website at least two months before the meeting.

He explained that this was an important paper should give guidance to the political level in forming the position of ISTA on this important question. It should help people that are in negotiations with policy makers with other technical groups to explain the ISTA position in regards to the unit of measurements. He requested the voting delegates to therefore consider this document carefully before giving their vote.

The delegate from the United States, Ms. Susan Maxon, asked for the editorial correction to be pointed out again.

Mr. Christoph Haldemann, Chair of the ISTA GMO Task Force elucidated the change had been made in the paragraph 2.4, in changing 'unique method' to 'single method'.

Mr. Norbert Leist, Honorary Life Member, disclosed that he was not present at the Ordinary Meeting 2008, but was wondering why the title of the document was referring to adventitious presence, because to his knowledge, the goal was to be able to find the seed whether it was adventitious or not. He therefore suggested to remove the word 'adventitious' from the title of the document. [01:16:37]

The Secretary General asked if this was a motion, which was confirmed. He then asked if there was a seconder to this motion, and there was. There were no more comments, so the Secretary General asked the voting delegates to vote on the removal of the word 'adventitious' from the title of the document. The voting delegates were asked to raise their green YES cards if in favour of the motion. There larger number of green cards were shown. The voting delegates were then asked to raise their red NO cards if not in favour of the motion. There was no red card shown, and the Secretary General declared the motion as adopted.

There were no more comments to the documents. The Secretary General therefore asked if there was a motion to adopt the position paper as modified. There was a motion and a second. The voting delegates were asked to raise their green YES cards if in favour of the motion. There larger number of green cards were shown. The voting delegates were then asked to raise their red NO cards if not in favour of the motion. There was no red card shown, and the Secretary General declared the position paper as adopted. [01:20:24]

Report from the Seed Analysts Training Workshop

Ms. Rita Zecchinelli, member of the Executive Committee, was asked to give a report on the Seed Analyst Training Workshop which was held at the opening of this Annual Meeting.

She reported that around 80 persons had participated in that workshop which had been chaired and moderated by the immediate Past-President, Mr. Pieter Oosterveld, as invited by the Executive Committee, and who had also been asked to summarise the workshop outcome. As Pieter Oosterveld did not have the possibility to personally present his summary at the Ordinary Meeting, the Executive Committee had asked her to read this summary in his place.

Ms. Rita Zecchinelli continued in saying that the written report was available in print for everyone. Before progressing to the summary, she focused on the background of the workshop and the process to be followed on matter: the ISTA Strategy 2007-2010 was approved by the voting delegates at the Ordinary Meeting 2007 indicates that training is part of the ISTA mission, and in response of the wish of the members, ISTA is developing a seed analyst training system. Following this, the Executive Committee established a Seed Analyst Training Committee, which presented proposals and ideas about the seed analyst training programme at the Ordinary Meeting last year. This presentation caused discussions and even concerns within the Association, therefore it became clear that different opinions exist on this topic within the Association, in particular regarding the role that ISTA should have in the field of seed analyst training. Corresponding to that, the Executive Committee decided to investigate further before establishing any system, and as a consequence, a questionnaire has been sent to all the ISTA members, and a workshop has been organised in conjunction with this Annual Meeting. The workshop took place on past Sunday and as a participant, she was of the opinion that it was a very interesting and successful workshop, and furthermore she had the impression that this was a common feeling.

For those who did not participate, Ms. Rita Zecchinelli reiterated that it was structured into two parts:

- in the morning session results of the questionnaire were presented, focussing on the different geographical areas: Eastern Europe, Western Europe, Australasia, South America, North America, Africa and Asia. This

approach was considered appropriate after the discussion at the Ordinary Meeting 2008 in Bologna, as this discussion showed that there are different situations and even different needs in the different parts of the world.

- in the afternoon session, 10 working groups were formed, each one guided by a leader, who was also asked to give a report about the discussion in his/her working group. [01:25:40]

The summary by Pieter Oosterveld as moderator of the workshop, includes some general comments and after that ten points, and for each of these points some comments are given and in some cases also some recommendations. She advised the delegates that these recommendations at this moment do not represent any decision, but proposals or indications that ISTA in particular the Seed Analyst Training Committee will take on board for their future work. She further explained that there would not be any vote on this item during this Ordinary Meeting, but possibly 2010.

What the Executive Committee would like to achieve is a general agreement on the outcome of the workshop and on the items and recommendations to be taken on board to continue with this project. Also she gave for consideration that persons who did not participate in the workshop who may find that some issues were not addressed during this workshop, are still welcome to contribute. The summary of the workshop has been posted on the ISTA website and comments from everyone are welcome to be submitted to the Secretariat, however, with the appeal to do it soon and latest by July 31, 2009 as the committee will need to start their work.

She informed the delegates that there was no option to change this report, but that she would be please to take on board any comments after reading it. Before giving the report she asked the working group leaders of the workshop if they agreed to the summary of Pieter Oosterveld and could confirm that he had taken into consideration all of their points.

The leader of working group 1, Ms. Alison Powell, commented that she found the report of Pieter Oosterveld to be an excellent summary of the comments and discussions of the workshop. One particular comment she wanted to give was however regarding the recommendations under the heading *Training material*, in particular recommendations third and fourth which refer to CDs and distance learning, which in her view overlap and also give the wrong emphasis as to what she had seen comments that were made during the discussions. She would rather see one recommendation for these two points, that ISTA should consider the possibility of introducing additional training material such as CDs and other forms of distance learning.

The leader of working group 2, Ms. Mary Chipili, found the summary by Pieter Oosterveld well captured, though she had a comment on the recommendation on training of trainers, the suggested annexe at the end is just one of those recommendations, but in her opinion there are also other ways.

Ms. Anne Bülow-Olsen, leader of working group 5 suggested to take into account the financial situation of ISTA when looking at the recommendations made, and to remember not to ask for too much new activities that cost money from the budget. Therefore her recommendation would be to use as much of already available material as possible, because it is important not to burden ISTA with more expenses.

Ms. Rita Zecchinelli contributed that in her working group, the option of making available workshop material, maybe at a cost, was raised, because such information was considered to be very valuable and to date this information was only made available to the workshop participants.

Ms. Anny van Pijlen, working group 9 leader, found that Pieter Oosterveld had made a very nice summary, and that in general she agrees with his recommendations as a starting point. She also said that the issue of funding had been raised, but after the financial presentation she would avoid this topic here. [01:32:27]

Mr. Joël Léchappé, leader of working group 7, had consulted with some members of his working group, who all agreed that the summary by Pieter Oosterveld reflects what has been said as a conclusion of the workshop, and the member of the working group would like to propose that things are made as simple as possible later on.

Ms. Katalin Ertsey who lead working group 8, supported the summary by Pieter Oosterveld. Her remark was that the questionnaire only took into consideration the laboratories consulted, but it should not be forgotten that there were many more laboratories in the world which were not consulted.

The leader of working group 3, Ms. Monica Moreno, also assured that in her opinion the report reflected what was discussed in the workshop. Her comment was to thank the Executive Committee for the opportunity that was given to contributing in this discussion by participating in that workshop, which was a very interesting experience and she suggested that such brain storming exercise could be implemented also on other topics. She found it a very nice experience discovering that people are the same all over the world and the same problems, wishes and ideas could be found on one subject, as she found many of the points that she had raised in the presentation she gave in the morning session of the workshop on the list of suggestions by other participants again. [01:35:37]

Mr. Steve Jones, who lead working group 4, reassured the report of Pieter Oosterveld reflected what had been discussed and supported Monica Moreno's comment that it was a very nice experience also getting to know other ISTA members in a small working group. If ISTA could try to repeat that on other topics, that would only contribute to the good.

Leader of working group 6, Ms. Susan Maxon, seconded those comments about the value of the workshop and also the report that Pieter Oosterveld had put together very well captured the point that were made in the group. She also wanted to echo Alison Powell's comment about the recommendation regarding establishing a programme of distance learning and use of CDs, as she thought it was a little bit more of exploring that possibility.

There were no more comments from the audience. The President concluded the session in thanking Rita Zecchinelli for her report and the working group leaders for their constructive comments.

Certificates for parts of lots (Request from the Netherlands)

The delegate from the Netherlands, Mr. Joost van der Burg, was asked to present the request from the Netherlands on certificates for parts of lots. Mr. Joost van der Burg thanked the Executive Committee for the opportunity given to make this presentation.

He was going to speak about certificates for sublots, a set of measures that in his opinion need be taken in order to bring ISTA and its membership forward. He said that as a fact sublots are being traded with national or company-own certificates and even with ISTA certificates (duplicates), meaning that the lot is tested once and several certificates are being distributed and the lot is also going in to different part in different moments. Apparently there is a great need for such an approach, because it happens in many countries, and not only in

horticulture, which he was going to stress in his presentation, but it is also prominent in agriculture. Especially in horticulture the lots are small and homogeneous. A survey revealed that there was a request to open up the principle of one test, one certificate in order to make the services of ISTA more efficient for the sector. As a conclusion, he stated that ISTA does not service that sector well and so the relevance of ISTA and the use of ISTA certificates could increase by changing the system.

In case of uniform lots including agricultural species the test results are supposed to be representative of all parts of a lot and in case of retests the results would still be within the accepted limits.

Therefore he sees no objections against allowing more than one Original certificate per lot, perhaps then there is a need to specify what particular part of the lot, like indicating bag numbers. [01:42:19]

At the end of the presentation, the Secretary General clarified the process in explaining that this was a proposal by the Netherlands, which was a starting point for discussion of this issue only. No decision on this proposal would be made at this meeting, but the item would be followed up if it would show to be a shared interest from the members.

Mr. Norbert Leist, Honorary Life Members, asked if it could be explained why there is a need for more than one original.

Mr. Joost van der Burg said that he was not an expert in this field, but to his knowledge if the seed lot has been tested well, and the data is available, it would be an asset to sell part of the lot if the customer does not want the whole lot. If part of the lot is sold, the rest of the lot will be sold to another customer and both customers want to have an original certificate.

Ms. Dot Vittrup from a DLF Trifolium in Denmark confirmed the need for this as she had been approached about this topic as well. To herself however it seemed confusing to have more than one original certificate, but it is definitely a request that she gets from her customers as well, especially from Russia.

Ms. Leena Pietilä as Chair of the ISTA Bulking and Sampling Committee informed the delegates that this issue had been discussed in her Committee and it was stressed that currently the ISTA certificate gives results from one sampling operation that concerns all of the lot. But the Committee would now be ready to make a report on the question if the result of whole sampling operation can be implied to one part of that seed lot.

Mr. van den Burg welcomed this movement from the Bulking and Sampling Committee.

Before closing the discussion, the President encouraged the members to continue discussions on this topic upon return to their home countries also from other aspects, like the certification aspect, from the certificate side, from the sampling side etc. [01:47:50]

Process of collaboration between Technical Committees and the Advanced Technologies Committee

Ms. Alison Powell was asked to give a brief report on the discussion meeting between her as Technical Committee Chair representative, Mr. Johan van Asbrouck as Chair of the Advanced Technologies Committee and the Secretary General on the subject of better collaboration between Technical Committees and the Advanced Technologies Committee as a result of a discussion that arose during the presentations of the last days.

It was suggested in that meeting that some of the Technical Committees wanted to have greater knowledge of what was going on within the Advanced

Technologies Committee. The Technical Committees that were identified to be wanting this greater involvement would be Germination, Tetrazolium, Vigour, Seed Health, Purity, Moisture and Statistics. She suggested that if there was any other Technical Committee that was wanting greater collaboration as well they could be included. The Advanced Technologies Committee circulates amongst its own members regular updates where they are up to on particular pieces of work, what is going on, what they are looking for, and it was thought to be useful if those updates that were sent out every 4-6 weeks were also shared with the Technical Committee Chairs of these specific Committees, so that the Technical Committee Chairs could see what technologies are being evaluated, if any are related to their own work and if they want to have any input through commenting on what is going on or offering to get involved, they can do, so it is fully transparent what is going on within the Advanced Technologies Committee and it is up to the Technical Committee Chairs to decide whether they want to comment or get involved.

The other aspect was that the Executive Committee and Technical Committee Chairs have a meeting and it is suggested that the Advanced Technologies Committee could submit the data that it is going to present at that meeting to the nominated Technical Committee Chairs four weeks before the meeting, so the Chairs have got a chance to look at the information and then the data being supplied by the Advanced Technologies Committee can be discussed in conjunction with the Executive Committee and Technical Committee Chairs. Next year, these discussions would take place at the strategic meeting that we are having in Cologne in February, and during this meeting it could also be discussed the way in which the data would be presented to the Congress in Cologne.

So basically this would mean that the Technical Committee Chairs could have far better involvement within the Advanced Technologies Committee if they so wished, and much better flow of information between the two groups. [01:51:26]

The President thanked Ms. Alison Powell for her report.

(14) President's Closing Address

The President Ms. Katalin Ertsey gave the closing address by thanking the colleagues and friends for working through this long meeting day of today. She concluded that it had been a very successful Annual Meeting 2009 with serious work, successful workshops, good discussions, meetings and talks with friends, good and important decisions and of course nice lunches and dinners in small groups and a very beautiful official dinner. She thanked everyone for their contributions, and hoped that the participants supported her feeling that belonging to ISTA is a nice and positive thing and that the participants had benefited from the meeting in their direct work as well, and hoped to see them again at the ISTA Congress next June in Cologne. Then she formally closed the Ordinary Meeting of 2009.

(15) Adjournment

The meeting was adjourned at 17:30.