Ensuring Seed Quality by Uniformity in Seed Testing

Role of Seed Testing in the Future World
The International Seed Testing Association (ISTA) is an international, non-profit association of seed testing laboratories and individual seed professionals.

ISTA operates under the governance of the governments of member countries and distinct economies.
Friederich Nobbe published his famous Handbook of Seed Science and the Motto of the meeting held in Hamburg that year was “uniformity in seed testing”, later becoming the ISTA logo.

At the request of FIS (ISF), ISTA adopted the first “International Rules of Seed Testing”, as well as establishing the ISTA Certificates Scheme.

During the ISTA Congress held in Copenhagen, ISTA Membership was opened to private laboratories and private seed companies.

During the ISTA Congress held in Budapest, it was agreed to consider accreditation as a purely technical task, and the responsibility to give authorization to issue ISTA International seed Analysis Certificates was given to the ISTA Executive Committee.

26 countries participated in the meeting held in Cambridge, and the International Seed Testing Association was founded.

ISTA Congress was held in Washington D.C., the first outside Europe, and demonstrated that, after 13 years of interruption by World War II, ISTA was indispensable to seed business.

To ensure harmonized seed testing worldwide, ISTA initiated the Quality Assurance Programme to accredit seed testing laboratories. The first ISTA member Laboratory was audited under the new set-up in this year.
Is the seed sold to farmers of the desired botanical species?

How many seeds are of the desired botanical species?

What other botanical species can be found in the seed sold?

Does the seed sold have the potential to produce a healthy plant.

https://www.youtube.com/watch?v=hK_wNrJu09Q
NOBBE’S REQUIREMENTS MORE THAN 150 YEARS AGO

- Science-bases Laboratory Testing
- Sampling is critical
- Standardised Methods for all tests needed (Rules)
- All Tests completed before seed sold to end-user
- Statistics is fundamental to Seed Testing
ISTA OBJECTIVES

• Develop, adopt and publish Standard Procedures for sampling and testing seeds and promote uniform application of these procedures, for evaluation of seeds moving in international trade.

• Promote Research in all areas of seed science and technology.
GLOBAL MEMBERSHIP

82 Countries
Counting at least one active ISTA Member

- 67 Designated Authorities
- 39 Personal Members
- 63 Associate Members
- 235 Laboratory Members

- 17 USA/Canada
- 101 Europe
- 19 Africa
- 72 Asia/Pacific
- 15 South America
- 11 Australia/Oceania
ISTA MEMBERSHIP

Member Laboratory*

- Is a laboratory engaged in the testing of seed, which supports ISTA’s objectives
- Participates in the Proficiency Testing programme (mandatory for accredited Laboratories)
- Receives free online, multi-user access to the International Rules of Seed Testing
- Purchases ISTA publications at the member’s reduced rate
- Member Laboratories have a free Personal Member
- Receives a free copy of newly published ISTA Handbooks upon release

*The term Member Laboratory also counts for Sampling Entities
ISTA MEMBERSHIP

Member Laboratory continued

All staff members receive priority booking at any ISTA event
(reduced registration fees for ISTA congresses, Annual Meetings, Symposia and Workshops

<table>
<thead>
<tr>
<th>Fee Description</th>
<th>Amount</th>
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<tbody>
<tr>
<td>ISTA Laboratory Membership annual fee*</td>
<td>5,214 CHF</td>
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<tr>
<td>Accreditation fee (applies for accredited laboratories only)*</td>
<td>1,224 CHF</td>
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<tr>
<td>Audit fee (paid annually, for accredited laboratories only)*</td>
<td>4,330 CHF</td>
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</table>

*2021 minus 10% for early birds
ISTA MEMBERSHIP

Personal Member

- Is a person engaged in the science and practice of seed testing or in its technical control, who supports ISTA’s objectives

- Receives free online, single-user access to the International Rules for Seed Testing

- Purchases ISTA publications at the members’ reduced rate

- Receives a free copy of newly published ISTA Handbook upon release

- No publication charge for articles in Seed Science and Technology

- Has priority book at any ISTA event (reduced registration fees for ISTA congresses, Ordinary Meetings, Symposia and Workshops)

ISTA Personal Membership annual fee*: 1049 Swiss Francs (CHF)

*2021 minus 10% for early birds
ISTA MEMBERSHIP

Associate Member

- Is a person engaged in the science and practice of seed testing or in its technical control, who supports ISTA’s objectives

- Purchases online, single-user access to the International Rules for Seed Testing and other ISTA publications like ISTA Handbooks at the members’ reduced rate

- ISTA events: Reduced registration fees for ISTA congresses, Annual Meetings, Symposia and Workshops

ISTA Associate Membership annual fee*: 214 Swiss Francs (CHF)

*2021 minus 10% for early birds
Government Governance

Personal Members may become Designated Members (and Voting Members), if nominated by their Designated Authorities.

Designated Members have passive (and if Voting Members also active) voting rights during ISTA ordinary Meetings.

This means that finally the Designated Authorities (Government Representatives) vote on Article, Rules, Membership Fees, Accreditation, the Executive Committee Members etc. of the Association.
ISTA PILLARS

International Standardisation of Reporting Results

Dissemination of knowledge

International Standardisation of Methodologies

International Standardisation of Laboratory results
20 TECHNICAL COMMITTEES

- Advanced Technologies Committee
- Bulking and Sampling Committee
- Flower Seed Testing Committee
- Forest Tree and Schrub Seed Committee
- Germination Committee
- GMO Committee
- Moisture Committee
- Nomenclature Committee
- Proficiency Test Committee
- Purity Committee
- Rules Committee
- Seed Health Committee
- Statistics Committee
- Seed Storage Committee
- Tetrazolium Committee
- Variety Committee
- Vigour Committee
- Editorial Board (SST)
- Seed Science Advisory Group
- Wild Species Working Group

Involving about 270 technologists and scientists around the globe

Over 250 seed professionals receive training yearly in ISTA workshops

ISTA Technical Committees
**PUBLICATIONS**

4 Languages
The International Rules for Seed Testing are published online in English, French, German and Spanish

ISTA Method Validation
is coordinated by ISTA Technical Committees for most of the test methods before being included to the Rules
Reports: issued annually

Continuously updated
ISTA Reference Pest List
Currently: 10 Crops
Published online (seedtest.org)

14 Handbooks
All new editions published online

800 Pages
of Seed Science and Technology (SST) published as open access online

2 Times per year
Seed Testing International (STI)
ISTA bi-annual news bulletin published as hard copy and online
1996 Introduction of the quality assurance program to accredit seed testing laboratories*

Every 3 years is the frequency, to which ISTA Accredited laboratories are audited, in order to obtain re-accreditation.

About 50 ISTA audits each year

30 performed by ISTA full-time employees

20 performed by external auditors

More than 140 ISTA Accredited Laboratories Worldwide

*The term seed testing laboratory also counts for sampling entities
ISTA PROFIENCY TESTS

ISTA offers the following PT's:

- **Standard PT**
  3 per year

- **GMO PT**
  1 per year

- **Seed Health PT**
  1 per year

- **NEW: DNA PT**
  1 per year

<table>
<thead>
<tr>
<th>Round</th>
<th>Species</th>
<th>Test round scope</th>
<th>Crop group</th>
<th>Size</th>
<th>Crop group</th>
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<tbody>
<tr>
<td>PT20-1</td>
<td>Phaseolus vulgaris</td>
<td>GER, VIG (conductivity), MOI</td>
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<td>B</td>
<td>Pulses</td>
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<tr>
<td>PT20-2</td>
<td>Allium porrum</td>
<td>PUR, OSD, GER, TZ, TSW</td>
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<td>B</td>
<td>Vegetables</td>
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<td>Festuca pratensis</td>
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<td>Grasses</td>
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<td>GER</td>
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<td>-</td>
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<tr>
<td>PT21-1</td>
<td>Zea mays</td>
<td>GER, VIG (radicle emergence), MOI</td>
<td>2</td>
<td>B</td>
<td>Cereals</td>
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<tr>
<td>PT21-1</td>
<td>Ulmus sp.</td>
<td>GER, TZ</td>
<td>7</td>
<td>-</td>
<td>Forest</td>
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<tr>
<td>PT21-2</td>
<td>Medicago sativa</td>
<td>PUR, OSD, GER, TZ, OIC, TSW</td>
<td>3</td>
<td>A</td>
<td>Small legumes</td>
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<tr>
<td>PT21-3</td>
<td>Fagopyrum esculentum</td>
<td>PUR, OSD, GER</td>
<td>5</td>
<td>B</td>
<td>Other agricultural species</td>
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<tr>
<td>PT22-1</td>
<td>Glycine max</td>
<td>GER</td>
<td>4</td>
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<td>Pulses</td>
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<td>Spinacia oleracea</td>
<td>PUR, OSD, GER</td>
<td>6</td>
<td>B</td>
<td>Vegetables</td>
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<tr>
<td>PT22-3</td>
<td>Lolium perenne</td>
<td>PUR, OSD, MOI, TZ, OIC</td>
<td>1</td>
<td>C</td>
<td>Grasses</td>
</tr>
</tbody>
</table>

Participation is free for member laboratories (mandatory for accredited laboratories depending on their scope of accreditation) and at cost for non-members.
ISTA CERTIFICATES

**About 200,000 certificates issued globally every year**

**Orange** for Seed Lots (including ISTA Sampling)

**Blue** for Seed Samples and Mixtures

A glance to the near future – ISTA Certificates going electronic!
HIGHLIGHTS AND SPECIAL PROJECTS

• ISTA Social Media: LinkedIn ( > 5’800 followers)
  Twitter ( > 790 followers)
  YouTube ( > 350 subscribers)

• ISTA/OECD: https://www.treeseedhandbook.info/

• ISTA Pest List: 10 Crops (to be completed by 2020 – IYPH)

• World Seed Partnership: http://www.worldseedpartnership.org/

• #Young@ISTA: Support to young seed professionals

• Other Special Projects: Train the trainers (e.g. Sampling Videos)
  Testing of Wild/Native Seeds
Thank you!