



Testing for specified traits in seeds - the ISTA strategy and the ISTA action plan

ISTA GMO TF

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- Brigitte Roth, Germany
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- Ana Vicario, Argentina
- David Zang, France

All above mentioned persons are ISTA GMO Task Force members



Position Paper

- ISTA's Vision
- ISTA's Strategy
- ISTA's Action plan

Are stated in the position paper on ISTA's strategy regarding methods for the detection, identification and quantification of genetically modified seeds in conventional seed lots.

http://www.seedtest.org/en/position_papers_content---1--1019.html



Vision

ISTA seed testing laboratories are competence centres for:

- **purity testing of specified traits**
- **detection, identification and quantification of specified traits**
- **providing uniform test results world wide**



Strategy

ISTA is focusing its activity on developing a system targeting the uniformity in GMO testing results by a

Performance **B**ased **A**pproach (PBA)

The relevant documents can be downloaded at:

<http://www.seedtest.org/en/content---1--1184.html>



Action Plan

For the realization of the Strategy, the ISTA GMO Taskforce was and still has to be active in the following fields:





Action Plan

- Organizing Proficiency Tests (PTs) on specified traits in conventional seed lots
- Evaluating the PT results
- Rating of the Laboratories on the basis of their submitted results
- Communicating the test and rating results to the laboratories



Action Plan

- Provide guidance to the PT participants in terms of improving and maintaining their test quality
- Maintaining an information platform for specified traits





Action Plan

- Organizing workshops together with the statistical committee
- Improving/facilitate the accreditation system for specified traits





Not in the scope of ISTA's activity

Not in the scope of ISTA's activity is developing and publishing methods for detection, identification and quantification of specified traits in seed lots.

This is due to facts like:

- questions of intellectual property
- lack of reference material
- methods, submitted by the applicants, available
(not for all specified traits available on the market worldwide)
<http://gmo-crl.jrc.it/statusofdoss.htm>
- etc.



Information Platform

The ISTA Information platform contains the following elements:

- **Transgenic Event Description**
- **Analytical Methods**
- **Statistical Tools**
- **Reference Material**
- **Literature**
- **Accreditation for specified traits**
- **Clarification Document**
(with respect to the set up of calibration curves and units)



Information Platform for GM Seed

[Transgenic Event Descriptions](#) | [Analytical Methods](#) | [Statistical Tools](#) | [Reference Materials](#) | [Literature](#) | [Accreditation for Specified Trait\(s\)](#) | [GMO Task Force](#) | [Clarification document 'Units'](#)

Specified trait testing including the detection, identification and quantification of GM seeds is a relatively new area of seed quality testing that ISTA has become involved in.

Due to the complexity of specified trait testing, the approach adopted by ISTA to ensure reliability and accuracy of results all over the world, when testing seeds for specific traits, differs from the traditional standardised methodology used when testing other seed quality attributes. It is founded on a Performance Based Approach under which laboratories are free to choose the methods they use with the ISTA [International Rules for Seed Testing](#) setting minimum requirements for the performance of laboratories carrying out such tests.

With the establishment of the Performance Based Approach it is expected that ISTA Member Laboratories may demonstrate their competence in specified trait testing to provide accurate and reproducible test results.

This **information platform should give you all necessary information** regarding the ISTA Performance Based Approach and includes additional links to technical information provided by ISTA and external sources: [transgenic event descriptions](#), [analytical methods](#), [statistical tools](#), [reference materials](#), [literature](#), [workshops](#), [ISTA accreditation for specified trait\(s\)](#) and the [ISTA GMO Task Force](#).

It aims to provide useful information for all laboratories:

- who are performing tests on specified traits in seeds
- who are participating in ISTA Proficiency Tests on GMO Testing
- who want to become ISTA-accredited for testing for specified traits in seeds.

<http://www.seedtest.org/en/content---1--1195.html>



Performance Based Approach

To ensure that the methods used for testing specified trait(s) in seed lots meet ISTA's minimum requirements, a

Performance Based Approach

was chosen

(detailed information will be given by Martina)



Questionnaire

(regarding Reference Material)

To check the demand for reference material for the Performance Data Evaluation, ISTA sent out a questionnaire to the ISTA laboratories and to all participants of the Proficiency Tests



Survey results

(regarding Reference Material)

Part of the world	Number of countries	Number of laboratories, responding	Number of laboratories asked
Africa	1	1	3
Asia	1	1	10
Europe	5	10	86
North America	2	2	24
South America	2	2	6
Asian Pacific	0	0	3

Distribution of laboratories responding to the questionnaire



Survey results

(regarding Reference Material)

Species	Number of different events	Number of laboratories requesting reference samples
Maize (<i>Zea maize</i>)	35	14
Rape seed (<i>Brassica napus</i>)	16	6
Soy-bean (<i>Glycine max</i>)	9	9
Cotton (<i>Gossypium sp.</i>)	7	2
Alfalfa (<i>Medicago sativa</i>)	1	1
Rice (<i>Oryza sativa</i>)	1	1
Sugar beet (<i>Beta vulgaris</i>)	1	1
Different screening elements	4	2
Total	74	36

Distribution of number of specified traits (event) per species



Reference Material

In spite of the high demand for Reference Material needed for the Performance Based Approach, ISTA is at this stage not in a position to provide any kind of material





Accreditation for specified traits

The 3 elements of accreditation according to the Accreditation Standard/ISTA rules:

- **Participation in proficiency testing**
(will be covered in details by Gerhard)
- **Performance data evaluation**
(will be covered in details by Martina)
- **On-site assessment**
(will be covered in details by Martina)



Proficiency Test Participation

- Two test rounds per year
- Participation is mandatory
- Rating is given
- Satisfactory performance is required



Performance Data Evaluation (PDE)

- Performance data for each method/species/trait combination that is part of the scope of accreditation
- At least one set of data per species and methodology according the PDE protocol
- A grade is given to **rank** performance
- The material used must be seeds



On-site assessment

- **Verification of implementation aspects of performance approved methods**
- **Assessment of technical and system aspects according to the requirements of the Accreditation Standard**



Task Force activities 2007-2008

(Permanent Tasks)

1.1 Continuation of the Proficiency test

WG leader: *Sylvain Grégoire*, successor: *Cheryl Dollard*

Members: *Cheryl Dollard, Lutz Grohmann, David Zhang, Gerhard Schuon, Christoph Haldemann*

2.1 Continuation of the accreditation programme (performance based approach)

WG leader: *David Zhang*

Members: *Charlotte Leonhardt, Sofia Ben Tahar, Sylvain Grégoire, Brigitte Roth, Kirk Remund*



Task Force activities 2007-2008

(Permanent Tasks)

3.1 Information exchange: webpage and workshops

WG leader: *Benjamin Kaufmann*

Members: *Enrico Noli, Charlotte Leonhardt, Michael Stahr, Cheryl Dollard, Christoph Haldemann*

4.1 Reference material distribution in the framework of the performance based approach

WG leader: *Brigitte Roth*

Members: *David Grothaus, Benjamin Kaufmann, Elizabeth Bates*



Task Force activities 2007-2008

(Temporary Tasks)

1.2 Participation in the Organizing Committee of the first global conference of GM analysis

WG leader: *Elizabeth Bates*

Members: *Michael Stahr, Sylvain Grégoire, Ana Laura Vicario*

2.2 Execution of the ISTA Seminar on specified traits at the annual meeting 2008

WG leader: *Ana Laura Vicario*

Members: *David Grothaus, Enrico Noli, Benjamin Kaufmann, Michael Stahr*



Task Force activities 2007-2008

(Temporary Tasks)

3.2 Identification of stacked genes

WG leader: Jean-Louis Laffont

Members: *Sylvain Grégoire, Kirk Remund, Elizabeth Bates, Lutz Grohmann*

4.2 Publication of the results of the Proficiency Test

WG leader: Kirk Remund

Members: *Sylvain Grégoire, Jean-Louis Laffont, Gerhard Schuon, Christoph Haldemann*



Main activities in the last year

- Re-establish of the GMO Task Force
- PT9: Launching, rating (in collaboration with the statistical committee) and communicating the results
- PT10: Launching (deadline for result submission: June 20, 2008)
- PT11: stage of seed material procurement



Main activities during the last year

- **Editing of a document to provide guidance with respect to the set up of calibration curves and units**
- **Draft: Position regarding the units for the reporting of quantitative results**
- **Etc.**



Outlook

(besides the ongoing tasks)

- Establish an activity programm 2008–2009
- Elect new Task Force members
- Publish PT results
- Improve the communication among the TF members and other international organizations
- Enhance the collaboration with GM seed material sponsors



Thank you for your attention

