

PRINCIPLES OF ACCREDITATION

SEED QUALITY ASSURANCE, MANAGEMENT AND CONTROL PROCESSES

SEMI International training course

University of Nairobi-CAVs

1st May, 2017

Seed Enterprises Management Institute

University of Nairobi *Grace Gitu*

AFSTA

AFSTA

- The **A**frican **S**eed **T**rade **A**ssociation
- The association of seed traders in Africa
- Established in 2000 to advance the interests of the private seed sector in Africa and beyond
- Secretariat headquarters in Nairobi, Kenya and a regional office in Dakar, Senegal
- Members are NSTAs, individual seed companies and seed related institutions
- AFSTA dialogue with seed stakeholders in public and private sector at national, regional and global levels, on issues that develop the Africa seed industry

AFSTA

Mission: *To create the best environment for trade & innovation in quality seed for the benefit of members & farmers in Africa*

Vision: *All farmers in Africa have access to quality seed for food security*



IN
Institute

Principles of Accreditation

Accreditation

- The process of officially recognizing a person or institution as qualified to perform a particular activity
- The *accreditation* process ensures that the official practices are acceptable, competent and employ suitable quality assurance

Authorization

- Giving permission/license to enforce obedience

Principles of Accreditation

Accreditation of Seed Testing laboratories

- open for Seed Testing Laboratories from the public and the private sector.

Purpose

1. To 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
2. **To PROMOTE RESEARCH** in all areas of seed science and technology

By who

- Carried out by The International Seed Testing Association (ISTA)
- The aim of ISTA Accreditation is to verify if a seed testing laboratory is technically competent to carry out seed testing procedures in accordance with the ISTA Rules.

ISTA Accreditation

- ISTA was established in 1924 to provide **‘Uniformity in Seed Testing’** to facilitate seed movement
- ‘Uniformity in Seed Testing’ became the ISTA logo
- ISTA accredits Seed Testing Laboratories from the public and the private sector
- ISTA Membership are persons and seed testing laboratories from public and private sector
- ISTA is governed by governments of member countries and distinct economies

ISTA Accreditation

- ISTA accreditation was started in 1996, when a Quality Assurance Program was initiated to accredit seed testing laboratories to ensure harmonized seed testing worldwide
- The ISTA accreditation program standardizes the determination of seed quality to facilitate international seed trade
- Standardization is carried out in;
 1. Testing methodologies
 2. Laboratory performance
 3. Reporting results
 4. Exchange of scientific results

International
standardization of
reporting results



International
exchange of
scientific results



International
standardization of
methodologies



International
standardization of
laboratory performance

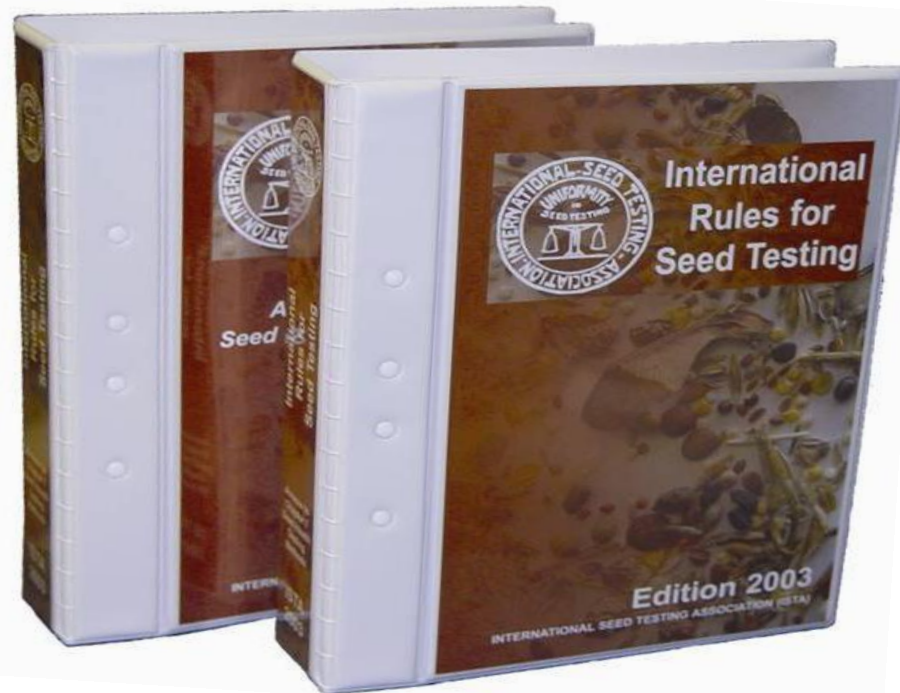
Seed Enterprises Management Institute

University of Nairobi

1. Testing methodologies (*ISTA RULES*)

Seed Enterprises Management Institute
University of Nairobi

International standardization of methodologies



SE
Seed En

N
stitute

ISTA standardization of Testing Methodologies

- ISTA publishes international rules for seed testing
- The first ISTA seed testing rules was adopted in 1931
- The ISTA seed testing methods are captured in the ISTA rules
- The ISTA Rules can be modified or amended through a proposal made by members or non-members

ISTA publishes international rules for seed testing



Table 2A Part 1 Agricultural and vegetable seeds

Species	Maximum weight of lot	Minimum sample weights		
		Submitted sample	Working sample for purity analysis	Working sample for count of other species
	Chapter 2 (kg)	Chapter 2 (g)	Chapter 3 (g)	Chapter 4 (g)
<i>Abelmoschus esculentus</i> (L.) Moench	20 000	1 000	140	1 000
<i>Achillea millefolium</i> L.	10 000	25	0.5	5
<i>Aeschynomene americana</i> L.	10 000	120	12	120
<i>Agropyron cristatum</i> (L.) Gaertn.	10 000	40	4	40
<i>Agropyron desertorum</i> (Fisch. ex Link) Schult.	10 000	60	6	60
<i>Agrostis canina</i> L.	10 000	25	0.25	2.5
<i>Agrostis capillaris</i> L.	10 000	25	0.25	2.5
<i>Agrostis gigantea</i> Roth	10 000	25	0.25	2.5
<i>Agrostis stolonifera</i> L. (includes <i>A. palustris</i> Hudson)	10 000	25	0.25	2.5
<i>Allium cepa</i> L.	10 000	80	8	80
<i>Allium fistulosum</i> L.	10 000	50	5	50
<i>Allium porrum</i> L.	10 000	70	7	70
<i>Allium schoenoprasum</i> L.	10 000	30	3	30

Some Chapters in the ISTA Rules

- **Sampling of a Seed Lot** (ISTA Rules Chapter 2)
- **Purity Analysis** (ISTA Rules Chapter 3)
- **Determination of Other Seeds by number** (ISTA Rules Chapter 4)
- **Germination Test** (ISTA Rules Chapter 5)
- **Seed Health Determination of Moisture Content** (ISTA Rules Chapter 9)

SEMIS UON
Seed Enterprises Management Institute
University of Nairobi

2. Laboratory Performance **(ACCREDITATION PROGRAM)**

Seed Enterprises Management Institute
University of Nairobi



INTERNATIONAL SEED TESTING ASSOCIATION
ASSOCIATION INTERNATIONALE D'ESSAIS DE SEMENCES
INTERNATIONALE VERENIGING VOOR SAATTOETSING

Deventer, Zandboer 30, P.O. Box 308, 6523 BX Deventer | CH-Beckenried
Phone: +41-41-833-60-30 | Fax: +41-41-833-60-31 | Email: ista@ista.ch | www.ista.ch



ISTA Seed Testing Laboratory Accreditation Standard

Note: Any electronic or hard copies of this document are uncontrolled copies. Confirm validity before use.

Approved by the ICCM 21/07/2005
ISTA Accreditation Standard

Version 4.0
Status: Final

22/07/2008

International standardization of laboratory performance

Enterprises Management Institute
University of Nairobi

International Standardization of Laboratory Performance

Standardization of laboratory performance is important to achieve reproducibility of seed quality determination and is done through;

- a) Development of a quality assurance system according to international standard.
- b) Continuous monitoring of the performance of the laboratories.
- c) Regular auditing of the laboratories through an independent body.
- d) Training and education of seed analysts.

Laboratory Performance

a) Quality assurance system

- Within the ISTA Accreditation Programme, Seed testing laboratories need to establish a quality assurance system following the requirements of the ISTA Accreditation Standard
- The standard can be downloaded free of charge from the ISTA webpage www.seedtest.org

SEMIS UoN
Seed Enterprises Management Institute
University of Nairobi

Laboratory Performance

b) Monitoring of laboratory performance

- proficiency testing

- done according to the international standard.

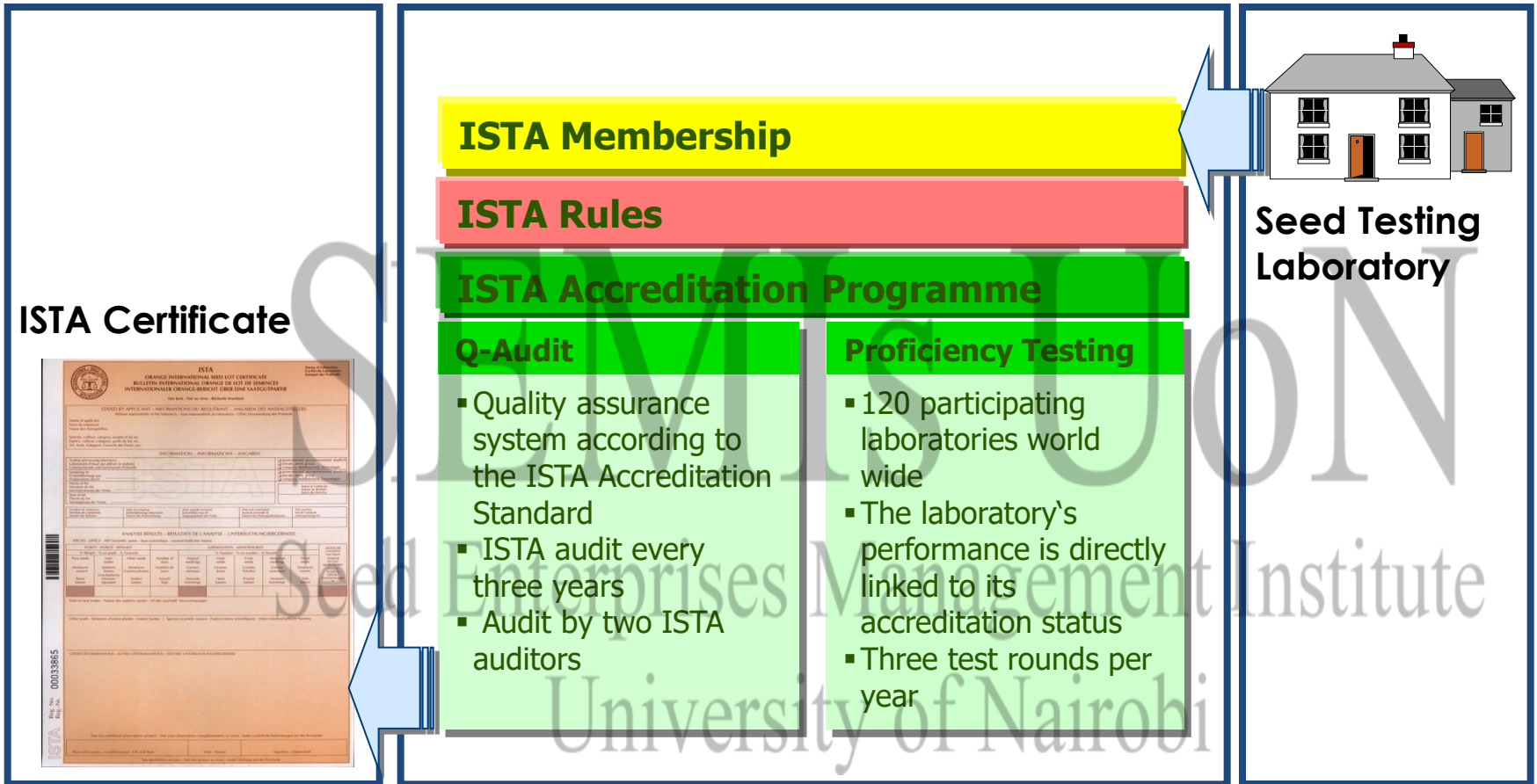
SEMIS UoN
Seed Enterprises Management Institute
University of Nairobi

ISTA Proficiency Test Programme

- Participation is mandatory for accredited laboratories, for the tests/crop group/events they are accredited for
- Voluntary participation possible for all member laboratories, regardless if accredited or not so as to:
 - ✓ Compare laboratory's testing performance with the performance of accredited laboratories
 - ✓ Gain experience of the program
- Non members are welcome to participate

SEMIS UoN
Seed Enterprises Management Institute
University of Nairobi

The ISTA Accreditation Programme



Laboratory Performance

c) Regular auditing of the laboratories

- ISTA Audit Programme

- ISTA audit team guarantees uniformity of the audit process worldwide

- The audit programme is carried out by highly experienced ISTA technical auditors

SEMIS UoN
Seed Enterprises Management Institute
University of Nairobi

3. Reporting of Results

(ISTA CERTIFICATES)

Seed Enterprises Management Institute
University of Nairobi



The image shows a yellow ISTA Form 2000, which is a standard form for reporting test results. It contains various fields for test details, results, and a table for test data. The form is tilted and partially obscured by a green oval.

International Standardization of Reporting Results

Enterprises Management Institute
University of Nairobi

ISTA Standardization of Reporting Results

The issuance of ISTA Certificates

- Only ISTA accredited laboratories are **authorized** to issue ISTA Certificates
- ISTA Certificates can be issued by private and public laboratories.
- ISTA Certificates are accepted by all countries in the world.
- ISTA Certificates are recommended under the ISF trade rules
- ISTA Certificates are recommended under the OECD Seed Schemes

Facilitation of International Seed Trade – The ISTA Certificates

ISTA
ORANGE INTERNATIONAL SEED LOT CERTIFICATE
BULLETIN INTERNATIONAL ORANGE DE LOT DE SEMENCES
INTERNATIONALER ORANGE-BERICHT ÜBER EINE SAATGUTPARTIE

Stamp of Laboratory
Cachet du Laboratoire
Stempel der Prüfstelle

(See back - Voir au verso - Rückseite beachten)

STATED BY APPLICANT – INFORMATIONS DU REQUÉRANT – ANGABEN DES ANTRAGSTELLERS
Without responsibility of the laboratory - Sans responsabilité du laboratoire - Ohne Verantwortung der Prüfstelle

Name of applicant
Nom du requérant
Name des Antragstellers

Species, cultivar, category, weight of lot etc.
Espèce, cultivar, catégorie, poids du lot, etc.
Art, Sorte, Kategorie, Gewicht der Partie usw.

INFORMATION – INFORMATIONS – ANGABEN

Testing and issuing laboratory
Laboratoire d'essai qui délivre le bulletin
Untersuchende und berechnende Prüfstelle

Sampling by
Échantillonnage par
Probedurchführung durch

Marks of lot
Marques du lot
Kennzeichnung der Partie

Seal of lot
Plomb du lot
Versiegelung der Partie

Status of Certificate
Statut des Bescheinigung

Number of containers Nombre de contenants Anzahl der Behälter	Date of sampling Échantillonnage effectué le Datum der Probedurchführung	Date sample received Échantillon reçu le Empfangdatum der Probe	Date test concluded Analyse terminée le Datum des Prüfungsbeschlusses	Lot number % de l'échantillon Untersuchungs-Nr.
---------------------------------------------------------------------	--------------------------------------------------------------------------------	-----------------------------------------------------------------------	-----------------------------------------------------------------------------	-------------------------------------------------------

ANALYSIS RESULTS – RÉSULTATS DE L'ANALYSE – UNTERSUCHUNGSERGEBNISSE

SPECIES - ESPÈCE - ART (Scientific name - Nom scientifique - wissenschaftlicher Name):

PURITY - PURETÉ - REINHIT			GERMINATION - KEIMFÄHIGKEIT							MORTUITY CONTENTS with food TENEUR EN MATIÈRE SÈCHE avec aliment TRENNE GEHALT anorganischer Substanz
% Weight - % en poids - % Gewicht			% Number - % en nombre - % Anzahl							
Pure seeds Semences pures Reine Samen	Inert matter Matières inertes Unschädliche Verunreinigungen	Other seeds Semences d'autres plantes Andere Samen	Number of days Nombre de jours Anzahl Tage	Normal seedlings Normale Keimlinge	Hard seeds Graines dures Harte Samen	Fresh seeds Graines fraîches Frische Samen	Abnormal seedlings Germe anormaux Anormale Keimlinge	Dead seeds Semences mortes Tote Samen		

Kind of inert matter - Nature des matières inertes - Art der unschädl. Verunreinigungen

Other seeds - Semences d'autres plantes - Andere Samen / Species (scientific names) - Espèces (noms scientifiques) - Arten (wissenschaftliche Namen)

OTHER DETERMINATIONS – AUTRES DÉTERMINATIONS – WEITERE UNTERSUCHUNGSERGEBNISSE

(See also additional observations on back - Voir aussi observations complémentaires au verso - Siehe zusätzliche Bemerkungen auf der Rückseite)

Place and country - Localité et pays - Ort und Staat	Date - Datum	Signature - Unterschrift
------------------------------------------------------	--------------	--------------------------

See declaration on back - Voir déclaration au verso - Siehe Erklärung auf der Rückseite

Reg. No. -
Reg.-Nr. 00708700

ISTA

ISTA
BLUE INTERNATIONAL SEED SAMPLE CERTIFICATE
BULLETIN INTERNATIONAL BLEU D'ÉCHANTILLONNAGE DE SEMENCES
INTERNATIONALER BLEU-BERICHT ÜBER EINE SAATGUTPARTIE

Stamp of Laboratory
Cachet du Laboratoire
Stempel der Prüfstelle

(See back - Voir au verso - Rückseite beachten)

STATED BY APPLICANT – INFORMATIONS DU REQUÉRANT – ANGABEN DES ANTRAGSTELLERS
Without responsibility of the laboratory - Sans responsabilité du laboratoire - Ohne Verantwortung der Prüfstelle

Name of applicant
Nom du requérant
Name des Antragstellers

Species, cultivar, category, weight of lot etc.
Espèce, cultivar, catégorie, poids du lot, etc.
Art, Sorte, Kategorie, Gewicht der Partie usw.

INFORMATION – INFORMATIONS – ANGABEN

Testing and issuing laboratory
Laboratoire d'essai qui délivre le bulletin
Untersuchende und berechnende Prüfstelle

Sampling by
Échantillonnage par
Probedurchführung durch

Marks of lot
Marques du lot
Kennzeichnung der Partie

Seal of lot
Plomb du lot
Versiegelung der Partie

Status of Certificate
Statut des Bescheinigung

Number of containers Nombre de contenants Anzahl der Behälter	Date of sampling Échantillonnage effectué le Datum der Probedurchführung	Date sample received Échantillon reçu le Empfangdatum der Probe	Date test concluded Analyse terminée le Datum des Prüfungsbeschlusses	Lot number % de l'échantillon Untersuchungs-Nr.
---------------------------------------------------------------------	--------------------------------------------------------------------------------	-----------------------------------------------------------------------	-----------------------------------------------------------------------------	-------------------------------------------------------

ANALYSIS RESULTS – RÉSULTATS DE L'ANALYSE – UNTERSUCHUNGSERGEBNISSE

SPECIES - ESPÈCE - ART (Scientific name - Nom scientifique - wissenschaftlicher Name):

PURITY - PURETÉ - REINHIT			GERMINATION - KEIMFÄHIGKEIT							MORTUITY CONTENTS with food TENEUR EN MATIÈRE SÈCHE avec aliment TRENNE GEHALT anorganischer Substanz
% Weight - % en poids - % Gewicht			% Number - % en nombre - % Anzahl							
Pure seeds Semences pures Reine Samen	Inert matter Matières inertes Unschädliche Verunreinigungen	Other seeds Semences d'autres plantes Andere Samen	Number of days Nombre de jours Anzahl Tage	Normal seedlings Normale Keimlinge	Hard seeds Graines dures Harte Samen	Fresh seeds Graines fraîches Frische Samen	Abnormal seedlings Germe anormaux Anormale Keimlinge	Dead seeds Semences mortes Tote Samen		

Kind of inert matter - Nature des matières inertes - Art der unschädl. Verunreinigungen

Other seeds - Semences d'autres plantes - Andere Samen / Species (scientific names) - Espèces (noms scientifiques) - Arten (wissenschaftliche Namen)

OTHER DETERMINATIONS – AUTRES DÉTERMINATIONS – WEITERE UNTERSUCHUNGSERGEBNISSE

(See also additional observations on back - Voir aussi observations complémentaires au verso - Siehe zusätzliche Bemerkungen auf der Rückseite)

Place and country - Localité et pays - Ort und Staat	Date - Datum	Signature - Unterschrift
------------------------------------------------------	--------------	--------------------------

See declaration on back - Voir déclaration au verso - Siehe Erklärung auf der Rückseite

Reg. No. -
Reg.-Nr. 00633700

ISTA

ISTA CERTIFICATES: **VISAS FOR INTERNATIONAL SEED TRADING**

Only ISTA-accredited laboratories are authorised to issue ISTA Certificates for seed analysis.

By reporting seed test results on ISTA Certificates, the issuing laboratory assures that the sampling and testing has been carried out in accordance with the ISTA Rules.

ISTA Certificates are accepted by many authorities and are mentioned into the Seed Act of several countries.

The ISTA Certificates are assuring that the test results are reproducible, true and represent the quality of the seed.

An **Orange International Seed Lot Certificate** is issued when both sampling from the lot and testing of the sample are carried out under the responsibility of an ISTA-accredited laboratory.

The image shows a sample of an ISTA Orange International Seed Lot Certificate. The form is yellow and contains the following elements:

- Header:** ISTA logo, "ISTA" text, and "Orange International Seed Lot Certificate" title.
- Table:** A large table with multiple columns for recording test results, including fields for "Lot No.", "Sample No.", "Date of Analysis", "ISTA Accredited Laboratory", and various test parameters.
- Barcode:** A vertical barcode on the left side of the form.
- Watermark:** A large, faint "SPECIMEN" watermark is visible across the center of the form.

DN
Institute

4. Exchange of Scientific Results

(ISTA PUBLICATIONS)

SEMI S UoN
Seed Enterprises Management Institute
University of Nairobi

29th ISTA
Congress Cologne
16 - 22 June 2010



Seed Symposium
ABSTRACTS

International exchange
of scientific results

Seed Enterprises Management Institute
University of Nairobi

International exchange of scientific results:

- Editing and issuing the Scientific Journal: Seed Science and Technology
- Organize Seed Symposium as part of the tri-annual ISTA Seed Congress

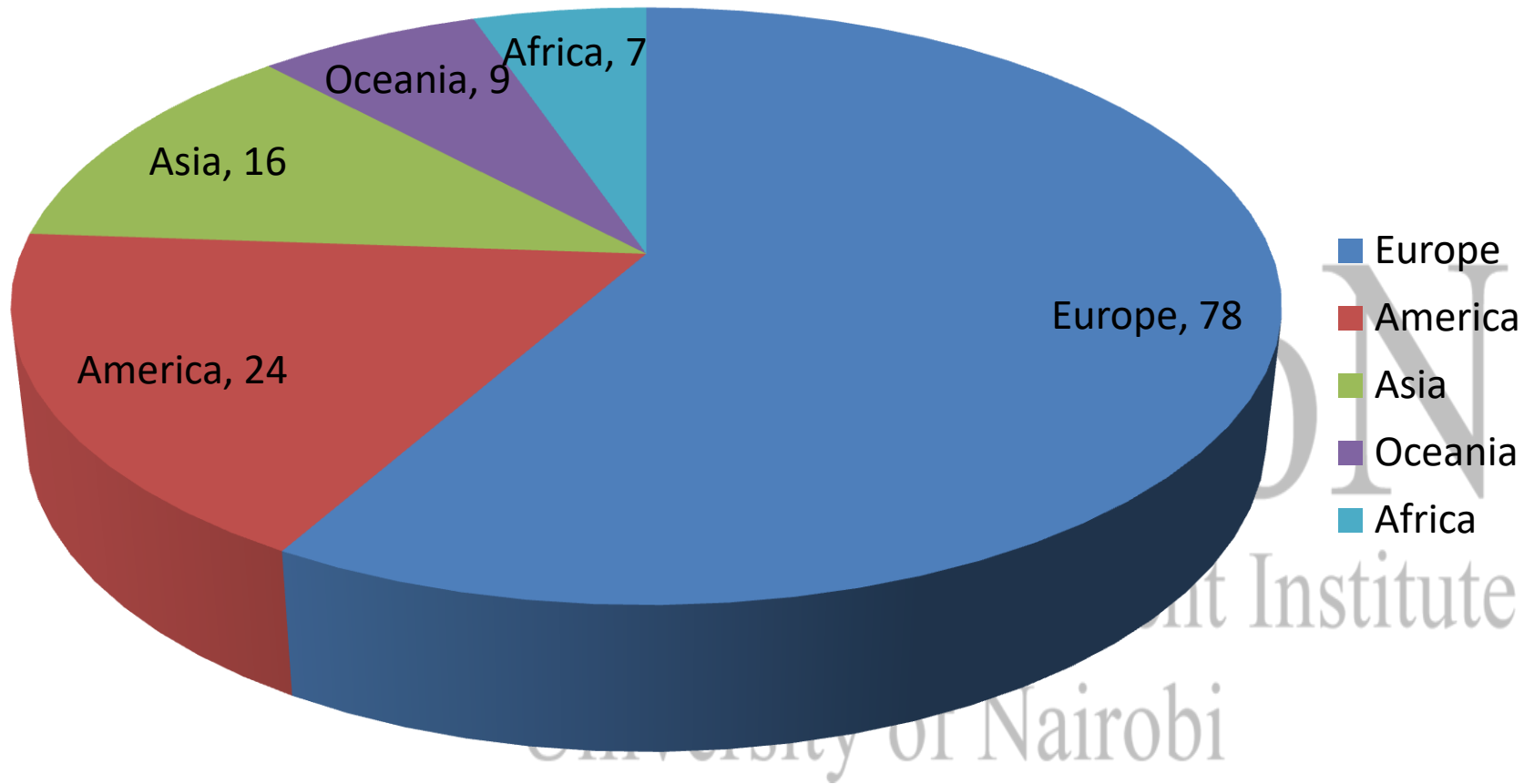
SEMIIS UoN
Seed Enterprises Management Institute
University of Nairobi

ISTA MEMBERSHIP CATEGORIES

- **MEMBER LABORATORIES -----222**
- **ACCREDITED LABORATORIES-----134**
- **ASSOCIATE MEMBERS-----58**
- **PERSONAL MEMBERS-----34**
- **INDUSTRY MEMBERS-----5**

SEMMIS UoN
Seed Enterprises Management Institute
University of Nairobi

Accredited ISTA Laboratories



ISTA MEMBERSHIP IN AFRICA

Designated authorities:

- Egypt, Kenya, Malawi, South Africa, Tunisia, Zambia, Zimbabwe

Member laboratories

- Egypt 1, Ethiopia 1, Kenya 2, Malawi 1, South Africa 3, Sudan 1, Tanzania 1, Tunisia 1, Uganda 1, Zambia 1, Zimbabwe 3 = **16**

ISTA CHALLENGES IN AFRICA

- Awareness?
- Access to OIC?
- Regional trade?
- Seed professionals?
- ISTA language?
- Accreditation process?

SEEMIS UoN
Seed Enterprises Management Institute
University of Nairobi

END

SEMI'S UoN

gitu@afsta.org

Seed Enterprises Management Institute
University of Nairobi