ISTA Purity Technical Committee (PUR)

Open Meeting

Chaired by: Ruojing Wang and Craig McGill
July 3, 2024

PUR Open Meeting Agenda

PUR General Program (30 minutes)

- Introduction (5 minutes)
- Project lead topics (15 minutes)
  - Publish on references of seed ID and FAQ (Andrea)
  - Project 20-2 (Ruojing)
- Special topics related to purity analysis (15 minutes)
  - Anemometer and blowing procedure (Ruojing, Dot)
  - Chapter 11 testing coated seeds (Erik)

Analyst Training in Purity & OSD (30 minutes)

- Sharing Best Practice
  - USA/CAD (**Ruojing,** Ernest, Sarah, Mellissa)
  - Uruguay **(Vanessa)**
  - New Zealand (**Sue,** Craig)
  - Europe (**Andrea,** Axel, Erik, Shankara)
- Panel discussion
  - ISTA initiatives (Craig)
  - Training collaboration?

ISTA Purity Committee (PUR) members (2022-2025)

Ruojing Wang
(Chair)
Canada

Andrea Jonitz
(Vice Chair)
Germany

Deborah Meyer
U.S.A.

Augusto Martinelli
Argentina

Kepha Oganda
Kenya

Maria Duter
New Zealand

Dot Vittrup Pedersen
Denmark

Selma Kurt
Turkey

Axel Goeritz
Germany

Sue Cousins
New Zealand

Aurelie Charrier
France

E. (Erik) van Egmond
Netherlands

Sumaia Mahmuda
Bangladesh

Shakara Naika
Netherlands

Tauhid Parvez
Canada

PUR Scope for ISTA Rules

- **Chapter 3** The purity analysis
- **Chapter 4** Determination of other seeds by number
- **Chapter 10** Thousand-seed weight (TSW) determination
- **Chapter 11** Testing coated seeds
- **Chapter 14** X-ray test
- **Chapter 16** Rules for size and grading of seeds
- **Chapter 18** Seed mixture analysis

CECOM Liaison: Craig McGill
New Zealand

Welcome new or young to join PUR working groups!

PUR Training and Workshop

ISTA Annual Mixture Round:

- Identification exercise, and internal PT optional
- Seed specimens and image reference
- Round 12 (PT-23-2) provided by Dot Vittrup Pedersen (DFL)

Festuca arundinacea

Lolium perenne

- Workshop

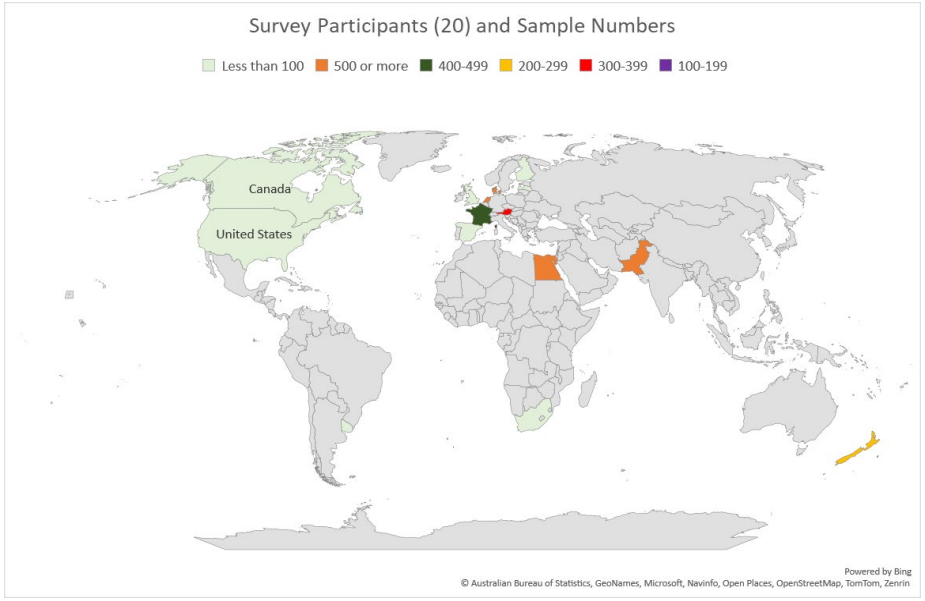
A well received workshop in Cambridge, June 26-28, 2024 for seed identification and purity analysis

- Webinar:

Identification of Brassica species (stay in tune)

Methodology Survey

- 24 questions developed and sent in 2023
- 20 laboratories responded and report will be published in STI



Blower Calibration

Set gate opening

Light fraction

Heavy fraction

Place entire sample in blower

Blow sample exactly 3 min.

Count the displaced seed

cdfa

ISTA Purity Workshop 27-29 September, 2011 Saskatoon, Canada

ISTA Rule Proposal

- The tiny tuber, propagule / disseminule, can be sowed as "super food" production.
- *Cyperus esculentus* also invasive to many countries, such as USA
- A “noxious weed seed” includes seed or propagule of any named species in international trade.

Cyperus esculentus

*Tuber image credit to Minnesota wildflower

Cyperus esculentus

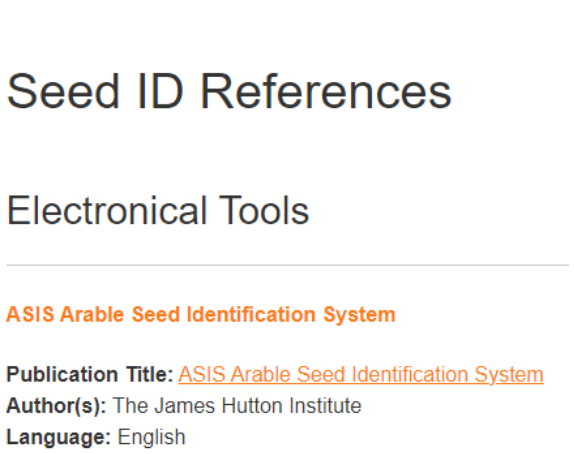
AOSA Seed Testing Rules

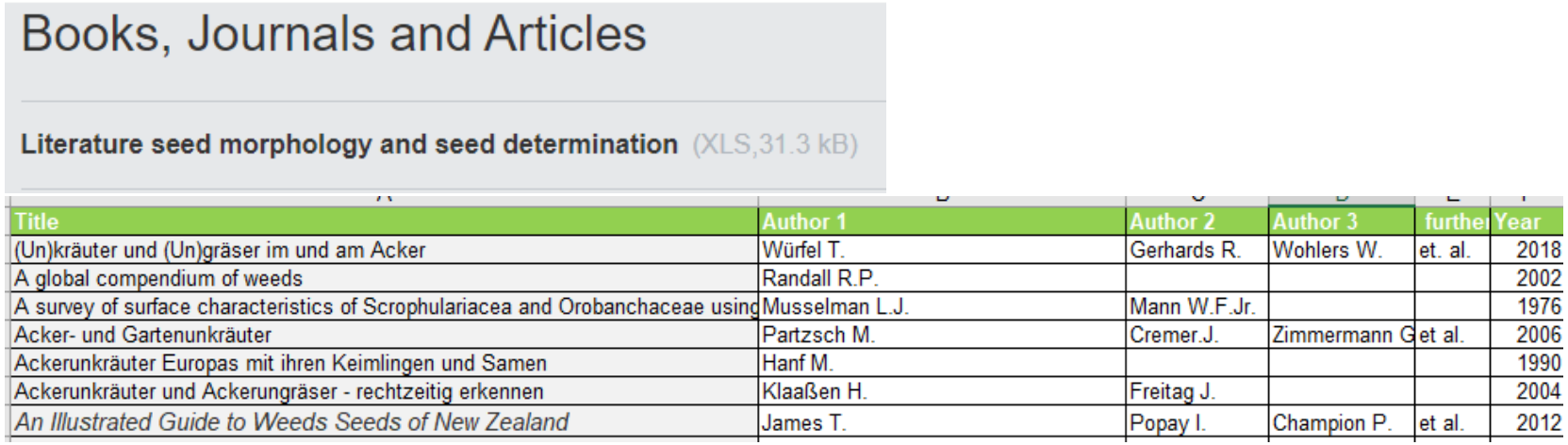
3.4 **Weed seed** — Seeds, florets, bulblets, tubers, or sporocarps of plants recognized as weeds by laws, official regulations, or by general usage shall be considered weed seeds; refer to section 4. For classification of badly damaged or immature weed seeds or seed-like structures refer to section 3.5 b. Special requirements are as follows:

a. Individual seeds and seed-like structures are to be removed from fruiting structures (such as capsules, heads, pods, etc.), counted and included with the weed seeds. Grass spikelets or spikelet groups are to be separated into individual florets and those containing caryopses are counted as weed seeds (refer to section 3.5 b for inert matter related to grass weeds). Fruiting structures and accessory structures as specified in section 3.5 b are included with the inert matter. For *Ambrosia* spp. refer to section 3.5 b (8).

Publication of References for Seed ID

- Seed ID Ressources are available since February 2024 under the sites of PUR:
  Seed ID References - International Seed Testing Association
- Includes electronical resources as well as literature





Title	Author 1	Author 2	Author 3	further	Year
(Un)kräuter und (Un)gräser im und am Acker	Würfel T.	Gerhards R.	Wohlers W.	et. al.	2018
A global compendium of weeds	Randall R.P.				2002
A survey of surface characteristics of Scrophulariacea and Orobanchaceae using	Musselman L.J.	Mann W.F.Jr.			1976
Acker- und Gartenunkräuter	Partzsch M.	Cremer.J.	Zimmermann G	et al.	2006
Ackerunkräuter Europas mit ihren Keimlingen und Samen	Hanf M.				1990
Ackerunkräuter und Ackerungräser - rechtzeitig erkennen	Klaaßen H.	Freitag J.			2004
An Illustrated Guide to Weeds Seeds of New Zealand	James T.	Popay I.	Champion P.	et al.	2012

- Further input from all ISTA Members is needed to represent all parts of the world
- Please send your references to: Andrea.Jonitz@ltz.bwl.de
  for benefit of the whole ISTA community

Publication of FAQ for the chapters under PUR responsibility

- FAQ are available since April 2024 under the sites of PUR:

[FAQ Purity Committee - International Seed Testing Association]

FAQ Purity Committee

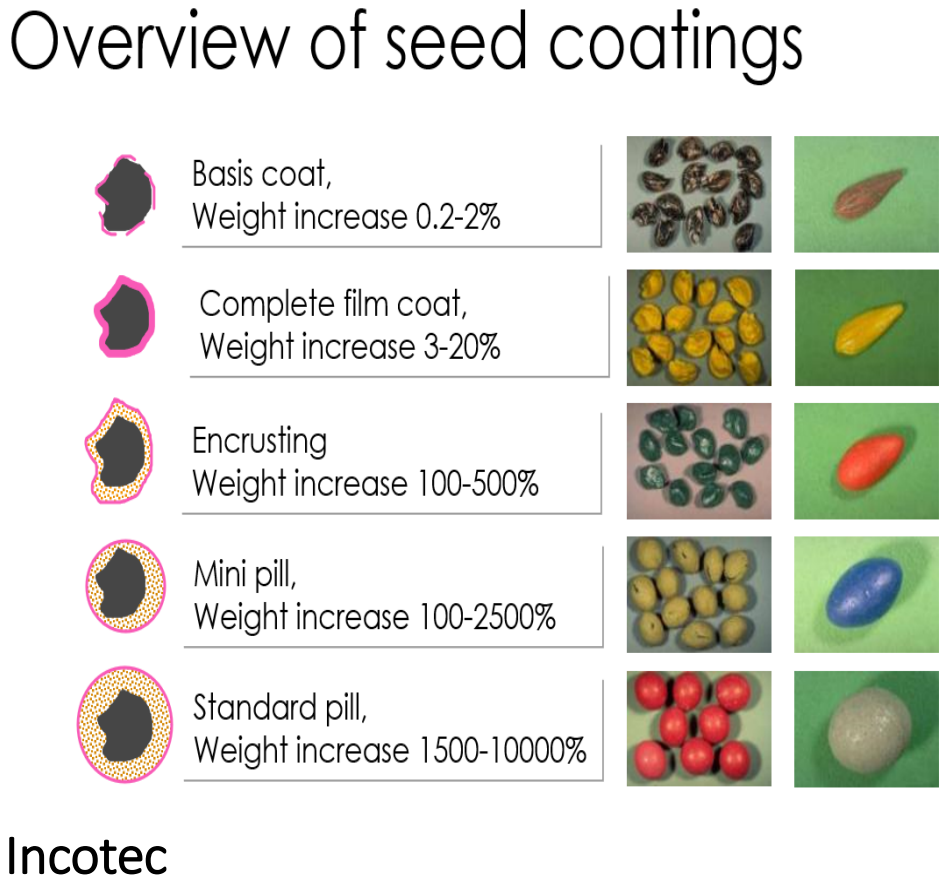
Purity Testing

Correct nomenclature according ISTA?

ISTA Chapter	3
Reference	3.7 Reporting rsults
Recommendation for action	ISTA has an agreement with ist stakeholders on a basic stability plant names of at least 6 years.

Chapter 11 Coated seeds

- In 2024 lot of changes were made
  - Are all changes clear for everybody?
- Are there things that we must change to make it clearer?
  - For example:
    - What must you do when two pellets stick together?
    - Must we have a method to determinate the percentage of covering material?
    - Is 100 pellets taken from the pure seed fraction good for verification of the species?
    - Is it clear when is seed treated or encrusted?



Incotec

Chapter 11 coated seeds

ISTA Rules:

11.3.2.1 Pure pellets

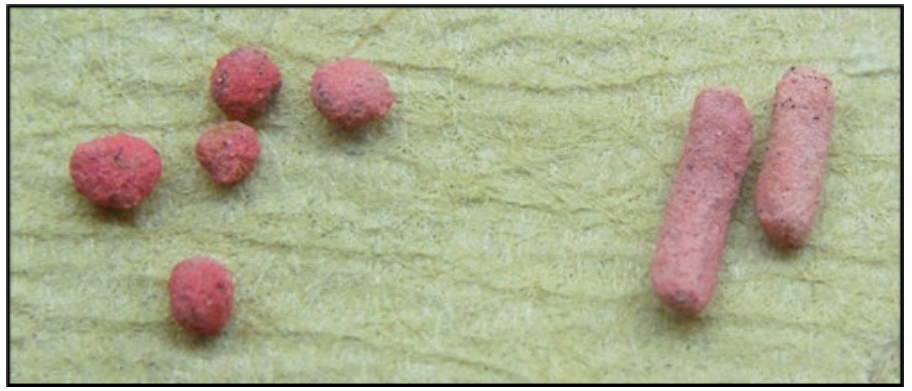
Pure pellets must include:

a. entire pellets regardless of whether or not they contain seed;

b. broken and damaged pellets in which more than half the surface of the seed is covered by pelleting material, except when it is obvious that either the seed is not of the species stated by the applicant (11.3.2.2.b), or there is no seed present (see 11.3.2.3.b).

11.3.2.2 Unpelleted seed

Are the different shapes in the picture all pure pallets?

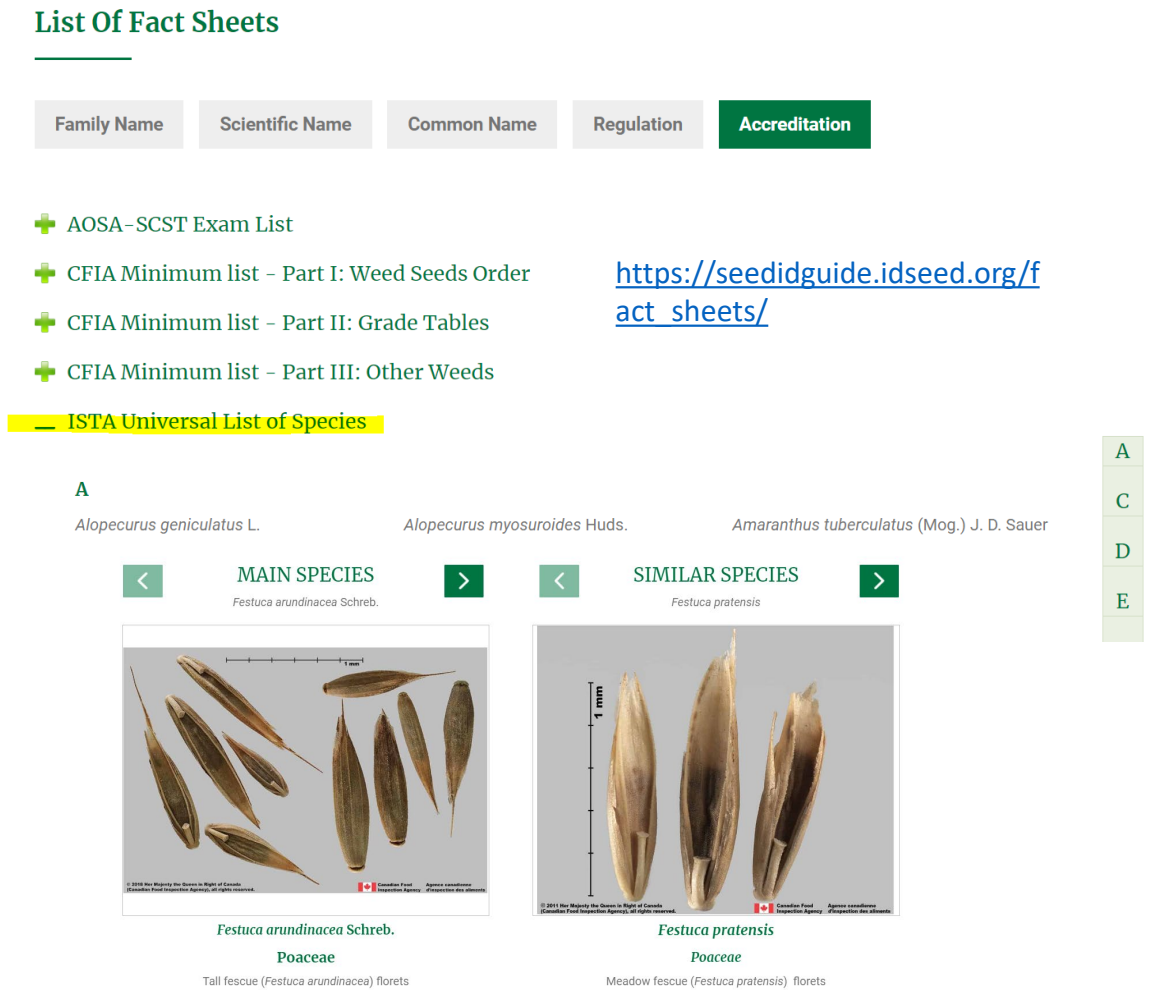


ISTA Project 20-2:

Development of Digital References for the Universal List (2021-2024)

- Task: 130 species for developing ID fact sheet and diagnostic images
- Authors:
  - Completed author training
  - Ongoing group discussion for product consistency
  - Need more active authors
- Product in 2023
  - 23 completed
  - All remaining species assigned

https://seedidguide.idseed.org/fact_sheets/



Panel Discussion:
Analyst Training: Best Practices

USA and Canada

(Ruojing, Ernest, Sarah, Mellissa)

South America

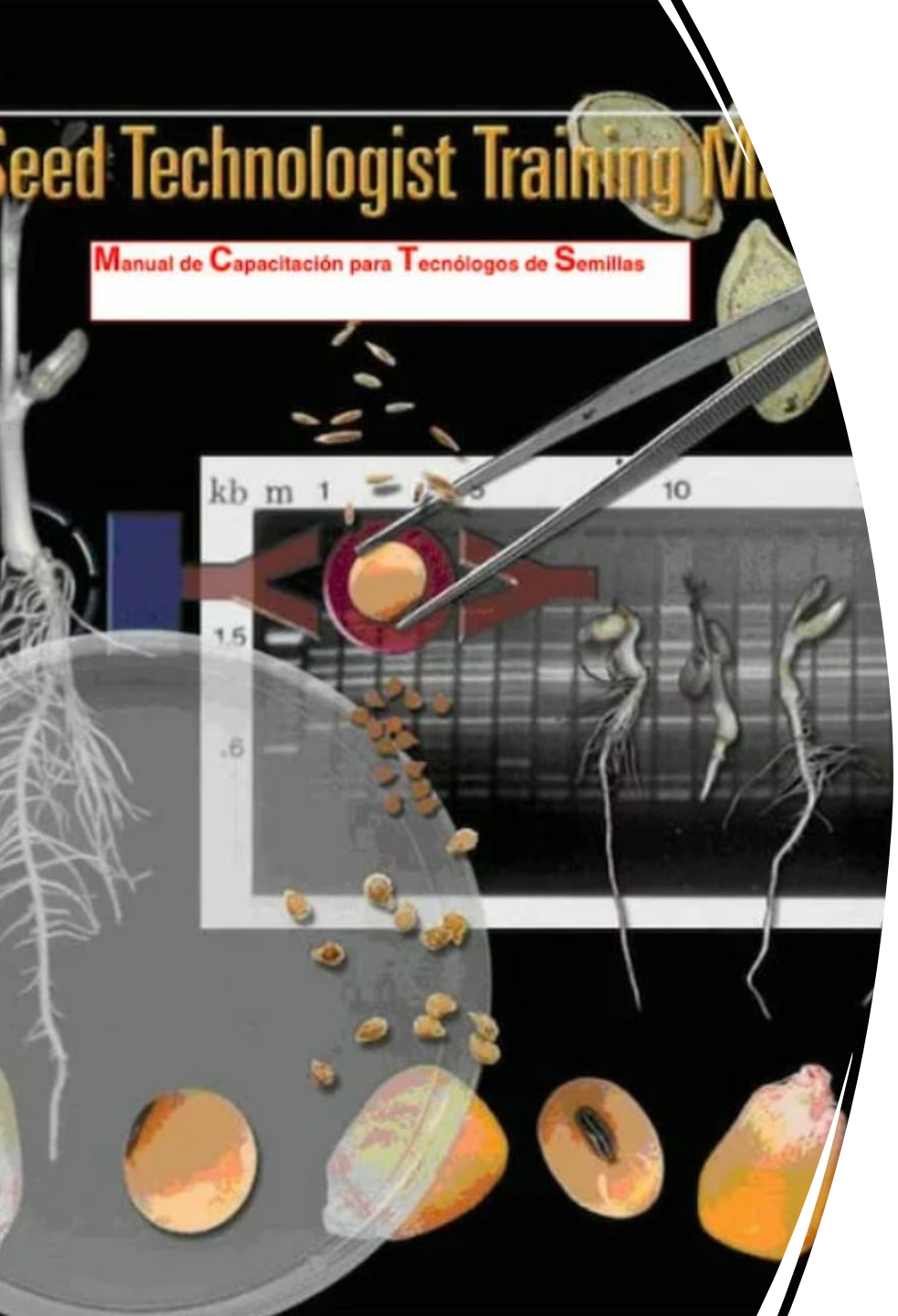
(Vanessa)

New Zealand

(Sue, Craig)

Europe

(Andrea, Axel, Erik, Shankara)



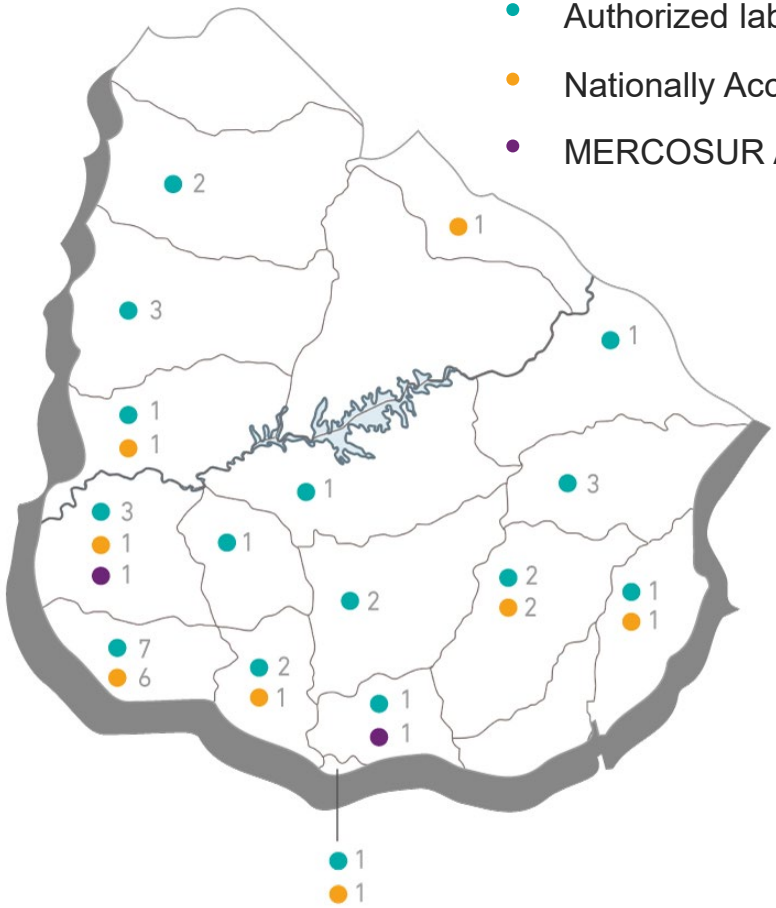
Best Practice: USA and Canada

- SCST analyst training manual specify general training program for entry to the career. https://analyzeseeds.com/product/2020-manual-para-technologos-de-semillas/
- Online tool developed for ongoing learning (ISMA)
- Accreditation or certification program for individual analysts to have entry exam and post skill monitor
- Continue education points for certified and accredited analysts to require and encourage self-learning activities (AOSA/SCST/Canada)

Challenges & Opportunities

- Training resources and quality varied from lab to lab
- No hiring, no training
- Training takes significant resources (HR and expertise) in each individual labs

Seed Testing Labs in Uruguay



Best training practices: Uruguay for seed analysts in purity testing

- ✓ Training regarding different groups of species
- ✓ Training in a specific specie.

2016 | Course: Physical Quality Analysis of Grasses and Leguminous Forage

2018 | Recognition of quarantine weeds for soybean export to China

2018 | Quality assessment for rice seeds

2019 | Purity and germination testing according to ISTA rules 2019 – *Glycine max*

INASE URUGUAY

INIA Instituto Nacional de Investigación Agropecuaria URUGUAY

CURSO: Análisis de Pureza y Germinación según Reglas ISTA 2019 - *Glycine max*

27 y 28 de Marzo

Miércoles 27 de 8:30 a 16:30 hs
Jueves 28 de 8:30 a 12:30 hs

PROGRAMA:

- Entrenamiento incluyendo revisión y novedades del Capítulo 3 (El análisis de Pureza) y del Capítulo 5 (Análisis de Germinación) de las Reglas ISTA 2019.
- Práctica con plántulas de *G.max*. Discusión de posibles casos. Evaluación estadística de resultados.
- Docente invitado: **Ing. Agr. Augusto Martinelli**, Consultor de calidad y miembro de los Comités de ISTA de Pureza, Germinación y Tetrazolio.

SEDE: INIA La Estanzuela
Ruta 50 km 11, Colonia

Dirigida a analistas y responsables técnicos de laboratorios

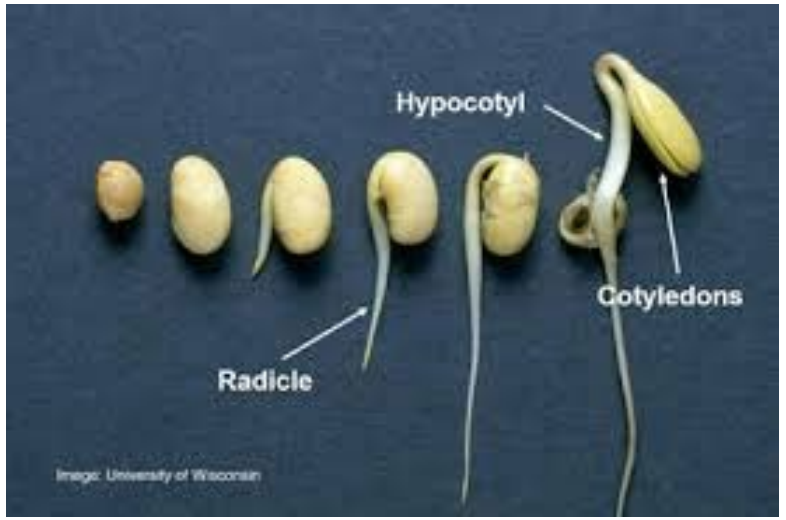
Ante cualquier duda:
sngonzalez@inia.org.uy

INSCRIPCIONES LIMITADAS HASTA EL 15 DE MARZO:

CUPO DE PARTICIPANTES: 15 mínimo y 20 máximo
COSTO: $ 5500 | Incluye: coffee break, almuerzos y material impreso

MEDIOS DE PAGO: Cuentas Corrientes en Pesos Uruguayos a nombre de INIA La Estanzuela.
BROU 1522703-0031
SANTANDER 000012354401 Sucursal 30
BBVA 991904766

Comunicarse con Lucía Fernández - Email: lfernandez@inia.org.uy



Lecturer: Agr. Eng. Augusto Martinelli

2018 | Training for analysts – Basic level

2021 | 1st National meeting of seed analysts (Double click on quality)

2022 | 2nd Meeting of seed analysts (cereals and oil crops physical quality)

2022 | 2nd Meeting of seed analyst (cereals and oil crops physical quality)

Uruguay Seed testing Lab Requirement

Laboratory accreditation

- The analysts are evaluated according to the species and techniques required in the INASE laboratory .
- INASE gives samples to the analyst to analyze in their laboratory.

The laboratory obtained the accreditation:

- If the analyst's result are correct in the stage 1 and 2.
- If lab meets all the points established in the laboratory accreditation standard.

Laboratory audit

1. INASE sends a sample that analysts test in the laboratory.
2. INASE takes a counter-sample and analyze it ourselves.

In the stage 1 and 2, if the results from the laboratory are within tolerance compared to our results , then the accreditation is maintained.

- But, if we find differences, we send new samples for the laboratory to analyze and/or take a new counter-sample.
- In case of obtaining more than 2 significant differences, we may revoke the laboratory's accreditation"

International Seed Testing Association (ISTA)

Seed Analyst Training in New Zealand

Background

Seed Analysts in New Zealand are currently trained in house with AsureQuality (NZ02) training the bulk of New Zealand analysts.

For AsureQuality:

- training duration is 2 years
- training is both theory and practical
- training covers purity, seed ID, germination, TZ, moisture, vigour, TSW

The New Zealand Seed Authority will recognize analysts when they reach the criteria required by their laboratory

Challenges

- recognition of seed analyst training with the New Zealand Qualification Authority (NZQA) Framework
    - possible to develop training programme within the NZQA framework but number of analysts needing training each year will not sustain a course
- career pathway for analysts within the seed sector is limited
- value of analysts is not always recognised
- training needs to
    - create pathways including in other sectors, for example include quality system skills within training
    - enhance perceived value of analysts (NZQA qualification)

Changes in Learning Seed Analysis

Up to 2000	Up to 2020	today
Young people coming from school	Younger and a bit older people with different background	Younger and older people with different background, want to learn, but maybe not stay
Appanticeship	2-3 years Training	2-3 years Training
3 years Examination	Exams for special qualification	Exams for special qualification
Lifelong Analyst	Usually staing long	Usually staing long

Seed Analysis Learning Programme

Main factors

- Learning steps are learnable in a short time
- Based on ISTA rules chapters
- Usually the steps follow each other
- Learners have to be tested and qualified, before the next step is tought
- Learners who passed the test can learn new learners
- the learning material
  - has to be excellent for the respective step
    - pictures, videoclips (max. 2 min), written, material
  - has to reflect exact what is done in the lab routine
  - Has to be updated as soon as the lab routine is changed
  - must include commen mistakes made in the lab in this step

- A qualification for the resp. step must be possible in much shorter time as in former times

International Seed Testing Association (ISTA)

ISTA and Seed Analyst Training

What ISTA offers

ISTA provides guidance for training seed analysts (https://www.seedtest.org/en/technical-committees/seed-analyst-training.html)

This includes:

- content of standard and advanced analyst training courses
- duration of training
- resources ISTA can provide (e.g., Handbooks)

ISTA's main support for professional development of analysts is through workshops which are aimed at already trained analysts

Young @ ISTA – laboratory training

Networking

Panel Discussion:
Analyst Training

Panelists: **Craig,** Ernest, Mellisa, Venessa, Sarah, Axel

- Training collaboration?
- New ways for training?

Disclosure

I have no actual or potential conflict of interest in relation to this presentation.

I have the following conflict/s of interest to declare:

- ✓ Ruojing Wang
- ✓ Andrea Jonitz
- ✓ Eric van Egmond

ISTA ANNUAL MEETING 2024
01-04 JULY
CAMBRIDGE, UNITED KINGDOM

Thank you