

Purity open meeting

Ruojing Wang , Sue Cousins and Shankara Naika

June 24th, 2026



Agenda PUR Open meeting

#	Topic	Presenter	Time slot
1	Purity activity report	Shankara Naika	15 min
2	Rules Proposal	Sue Cousins	15 min
3	Projects and workshops	Ruojing Wang	20 Min
4	Open discussion	All	10 Min

Introduction and Purity activity report

Shankara Naika

Introduction: 15 members from 11 countries



Sue Cousins
New Zealand



Andrea Jonitz
Germany



Deborah
Meyer
U.S.A.



Aurelie Charrier
France



Augusto Martinelli
Argentina



Dot Vittrup Pedersen
Denmark



Shakara Naika
Netherlands



Ruoqing Wang
Canada



Selma Kurt
Turkey



Axel Goeritz
Germany



Sumaia Mahmuda
Bangladesh



Maria Duter
New Zealand



Maria Paulina
Poland



Laura Carlson
USA



E. (Erik) van Egmond
Netherlands

ECOM liaison officers



[Ernst Allen](#)



[Keshavulu Kunusoth](#)

PUR Scope for ISTA Rules

- Chapter 3 & 4: The Purity Analysis and OSD
 - Size and grading of *Beta species* (PUR#26 Size grading)
 - Distinguish the subspecies *Barley a wild Barley*

<u><i>Hordeum vulgare</i> L.</u>	Poaceae [Gramineae]	<u>HORDE_VUL</u>
<u><i>Hordeum vulgare</i> L. subsp. <i>spontaneum</i> (K. Koch) Thell.</u> (Synonym: <i>Hordeum spontaneum</i> K. Koch)	Poaceae [Gramineae]	<u>HORDE_SPO</u>
<u><i>Hordeum vulgare</i> L. subsp. <i>vulgare</i></u>	Poaceae [Gramineae]	<u>HORDE_VUL_VUL</u>

- Determination of *Avena species*
 - Doubts about differentiation *Ammi versus Conium maculatum*
 - Attached inert matter to seeds of *Tomato and Melon*
- Chapter 10: Thousand seed weight determination
 - ISTA TSW Tool : *Vigna mungo* and /or *Vigna radiata*
 - High TSW due to moisture gain due to shipping and border delay (*Clover*)

PUR Scope for ISTA Rules

- **Chapter 10: Thousand seed weight determination**
 - *ISTA TSW Tool : Vigna mungo and /or Vigna radiata*
 - *High TSW due to moisture gain due to shipping and border delay (PT sample)*

Upcoming

- Chapter 11: Testing coated seeds **(in revision)**
- Chapter 18: Rules for seed ID mixed samples analysis
 - *Sample preparation and shipping: 2026-2028*
- Statistical tolerance development for >1000 gr. Seeds
 - *New tool will be developed by statistical committee*

Rules Proposal

Sue Cousins

Object of the other seed determination

Object of Other seed determination

This proposal is made for precision: In the other seed determination the number of seeds is not estimated but counted.					
There is not an Other seed determination test in the AOSA Rules.					
This proposal was submitted by the Purity Committee.					
PUR Committee Votes		Yes: 9	No: 0	Abstain/Absent: 1	
CURRENT VERSION			PROPOSED VERSION		
4.1 Object The object of the determination is to estimate the number of seeds of other species stated by the applicant either generally (e.g. all other species) or by reference to one category of seeds (e.g. species scheduled as noxious in a certain country), or specifically (e.g. <i>Elymus repens</i>). In international trade this analysis is used mainly to determine the presence of seeds of noxious or undesirable species.			4.1 Object The object is to <u>determine</u> the number of seeds of other species stated by the applicant either generally (e.g. all other species) or by reference to one category of seeds (e.g. species scheduled as noxious in a certain country), or specifically (e.g. <i>Elymus repens</i>). In international trade this analysis is used mainly to determine the presence of seeds of noxious or undesirable species.		

Pure seed definition for Paspalum

Chapter 3: The purity analysis

C.3.1 Pure seed definition for *Paspalum* spp.

Pure seed definition 36 mentions "no need to check for the presence of a caryopsis" only for *Megathyrsus*, *Panicum* and *Digitaria*. The genus *Paspalum* included in PSD 36 has the same characteristics: it is exceptionally difficult to differentiate between pure seed and florets without a caryopsis. *Paspalum* is also difficult to blow as the seeds tend to be tacky and stick together. To not have to check for the presence of a caryopsis would make the purity test easier for the analyst. As with *Megathyrsus*, *Panicum* and *Digitaria*, and knowing that the germination percentage would decrease due to the pure seed containing more seed without a caryopsis, the use of pure live seed (PLS) would be convenient. This proposal also puts the genera in alphabetical order.

It is not possible to harmonise this proposal with the AOSA Rules because species of the genus *Paspalum* are generally treated differently as in ISTA.

This proposal was submitted by the Purity Committee

PUR Committee Votes	Yes: 11	No: 0	Abstain/Absent: 2
---------------------	---------	-------	-------------------

CURRENT VERSION

Table 3B Part 2. Numbered pure seed definitions

36. Spikelet, with or without pedicel, with glumes, lemma...
 ...
Megathyrsus, *Panicum* and *Digitaria*: no need to check for the presence of a caryopsis.

PROPOSED VERSION

Table 3B Part 2. Numbered pure seed definitions

36. Spikelet, with or without pedicel, with glumes, lemma...
 ...
Digitaria, *Megathyrsus*, *Panicum* and *Paspalum*: no need to check for the presence of a caryopsis.

Reporting specified inert matter in Chapter 3 & 4

- **Why??**
- Where inert matter of phytosanitary significance (e.g. soil, ergot) is reported using the amount specified in *Table 2C, Column 5*, the method used for detection **must be declared**, along with a “**no rules**” statement on the Orange International Certificate (OIC).
- This requirement is frequently **misunderstood and viewed negatively by industry**, particularly by users relying on OICs for international trade decisions.
- There is a clear need to **standardise the reporting of inert matter across laboratories**, to improve uniformity, comparability, and industry acceptance.

Reporting specified inert matter in Chapters 3 & 4

C.3.2 Reporting specified inert matter in Chapters 3 and 4

A proposal for reporting inert matter in the OSD has been received from the New Zealand ISTA Laboratory Members.

The New Zealand ISTA Laboratory Members are proposing the Rules change to enable the reporting of undesirable inert matter as individual components. This is also important for use of the ISTA Certificates in international trade.

The submission of this proposal follows the guidelines for Rules proposals from ISTA members as outlined in I-2 Guidelines for ISTA Rules Proposals in the ISTA Rules.

This proposal has been sent to the ISTA Purity Committee and has been considered by the ISTA Executive Committee with advice from the ISTA Accreditation and Technical Department.

The Executive Committee is proposing a modification of the New Zealand proposal as reporting by percentage should be in Chapter 3.

If accepted this Rules change proposal will result in consequent changes to 1.5.2.2 Purity and 1.5.2.4 Determination of other seeds by number.

PUR Committee Votes	Yes: 11	No: 2	Abstain/Absent: 2
----------------------------	----------------	--------------	--------------------------

Chapter 3: The purity analysis

CURRENT VERSION	PROPOSED VERSION
3.5.2 Separation	3.5.2 Separation
...	...
4. until sample disposal (see 2.5.3 and 2.5.4.7).	4. until sample disposal (see 2.5.3 and 2.5.4.7).
3.5.2.1 All families except Poaceae	5. <u>Upon request, and in addition to the purity analysis, specified inert matter (e.g., soil, sclerotia, ergot, smut balls, nematode galls) may be separated on the purity working weight, or on a weight as specified by the customer that is more than the minimum working weight of Table 2C column 4. For reporting the absence, presence or percentage by weight refer to 3.7.</u>
...	...
	3.5.2.1 All families except Poaceae
	...

3.7 Reporting Results

CURRENT VERSION	PROPOSED VERSION
<p>3.7 Reporting results</p> <p>...</p> <p>Upon request, the following information must be reported under 'Other determinations' as follows:</p> <ul style="list-style-type: none"> • Other seeds may be divided into 'other crop seeds' and 'weed seeds'... <p>...</p> <ul style="list-style-type: none"> • The percentage by weight of broken pure seed. <p>The percentages may be reported to more than one decimal place if requested.</p>	<p>3.7 Reporting results</p> <p>...</p> <p>Upon request, the following information must be reported under 'Other determinations' as follows:</p> <ul style="list-style-type: none"> • Other seeds may be divided into 'other crop seeds' and 'weed seeds' <p>...</p> <ul style="list-style-type: none"> • The percentage by weight of broken pure seed. • <u>The percentage by weight of specified inert matter (e.g., soil, sclerotia, ergot, smut balls, nematode galls) on applicant specified weight (see 3.5.2.5).</u> • <u>Absence or presence of components of specified inert matter (e.g., soil, sclerotia, ergot, smut balls, nematode galls) on applicant specified weight (see 3.5.2.5).</u> <p>The percentages may be reported to more than one decimal place if requested. <u>If the weight of the working sample tested for specified inert matter is more than 10 % higher than the weight specified in Table 2C, column 4 (Purity analysis), the actual weight examined must be reported according to the minimum number of decimal places indicated in 3.5.1.</u></p> <p>Upon request, the following information must be reported under 'Other determinations' as follows:</p> <p>The percentages may be reported to more than one decimal place if requested.</p>

Chapter 4

Chapter 4: Determination of other seeds <u>and specified inert matter</u> by number	
CURRENT VERSION	PROPOSED VERSION
<p>4.1 Object</p> <p>The object of the determination is to estimate the number of seeds of other species stated by the applicant either generally (e.g. all other species) or by reference to one category of seeds (e.g. species scheduled as noxious in a certain country), or specifically (e.g. <i>Elymus repens</i>). In international trade this analysis is used mainly to determine the presence of seeds of noxious or undesirable species.</p> <p>...</p>	<p>4.1 Object</p> <p>The object of the determination is to estimate the number of seeds of other species <u>or specified inert matter</u> stated by the applicant either generally (e.g. all other species) or by reference to one category of seeds (e.g. species scheduled as noxious in a certain country), or specifically (e.g. <i>Elymus repens</i>). In international trade this analysis is used mainly to determine the presence of seeds of noxious or undesirable species.</p> <p>...</p>
CURRENT VERSION	PROPOSED VERSION
<p>4.2 Definitions</p> <p>...</p> <p>4.2.5 Reduced-limited test</p> <p>...</p> <p>4.3 General principles</p>	<p>4.2 Definitions</p> <p>...</p> <p>4.2.5 Reduced-limited test</p> <p>...</p> <p>4.2.6 Specified inert matter <u>Inert matter specified in 3.2.3 (e.g., sclerotia, ergot, smut balls, nematode galls) as stated by the applicant.</u></p> <p>4.3 General principles</p>

<p>4.5.2 Determination</p> <p>The working sample is searched either for seeds of all other species or of certain stated species, as required by the applicant. The number of seeds found of each species sought is counted.</p> <p>If the search is limited to certain stated species, the examination may be stopped when one or more seeds of one or all of the stated species (as appropriate to the applicant's requirements) has been found.</p> <p>Seeds of the other species found must be retained and stored for reference until sample disposal (see 2.5.3 and 2.5.4.7).</p>	<p>4.5.2 Determination</p> <p>The working sample is searched either for seeds of all other species or of certain stated species or specified inert matter as defined in 4.2.6, as required by the applicant. The number of seeds found of each species or specified inert matter sought is counted.</p> <p>If the search is limited to certain stated species, the examination may be stopped when one or more seeds of one or all of the stated species (as appropriate to the applicant's requirements) has been found.</p> <p>Seeds of the other species or specified inert matter found must be retained and stored for reference until sample disposal (see 2.5.3 and 2.5.4.7).</p>
<p>4.6 Calculation and expression of results</p> <p>The result is expressed as the number of seeds belonging to each stated species or category found in the actual quantity examined. In addition the number per unit weight (e.g. per kilogram) may be calculated.</p> <p>If a second or more tests are carried out on the same sample, then the result must be expressed as the total number of seeds found in the total weight examined.</p> <p>...</p>	<p>4.6 Calculation and expression of results</p> <p>The result is expressed as the number of seeds belonging to each stated species or category found in the actual quantity examined. In addition the number per unit weight (e.g. per kilogram) may be calculated.</p> <p>Upon request, the specified inert matter (e.g., sclerotia, ergot, smut balls, nematode galls) separated at the purity test (3.2.3) can also be separated and expressed as a number. When it is not possible to express the specified inert matter as a number (e.g., soil or dust), it must be expressed as a percentage by weight (see 3.5.2.5).</p> <p>If a second or more tests are carried out on the same sample, then the result must be expressed as the total number of seeds found in the total weight examined.</p> <p>...</p>

4.7 Reporting Results

Rules Proposals for the International Rules for Seed Testing 2027 Edition

PART C. Rules Changes and New Methods Requiring a vot

4.7 Reporting results	4.7 Reporting results
<p>The result of a determination of other seeds by number must be reported under 'Other determinations' as follows: ... If no seeds were found it can be reported as: 'No seeds of ... species were found in ... g of seed examined.'</p> <p>The sample weight examined must be reported according to the number of decimal places indicated in Table 4A.</p>	<p>The result of a determination of other seeds <u>or specified inert matter</u> by number must be reported under 'Other determinations' as follows: ... If no seeds were found it can be reported as: 'No seeds of ... species were found in ... g of seed examined.'</p> <p>The sample weight examined must be reported according to the number of decimal places indicated in Table 4A.</p> <p>The result of a determination of specified inert matter is expressed as the number of each requested specific inert matter found in the actual quantity examined.</p> <p>Upon request, the results may in addition be expressed in some other way, such as 'weight of <u>specified inert matter components</u> found' or 'number of <u>specified inert matter components</u> per kilogram'.</p> <p>Upon request, the absence of specified inert matter is <u>if no component of the inert matter specified by the applicant was found, it can be</u> reported as: 'No (name of specified inert matter) found in X g of seed examined.'</p> <p>The sample weight examined must be reported according to the number of decimal places indicated in Table 4A.</p>

Consequential changes to Chapter 1

Consequential changes to Chapter 1

CURRENT VERSION	PROPOSED VERSION
<p>1.5.2.2 Purity</p> <p>...</p> <p>Upon request, the following information must be reported under 'Other determinations' as follows:</p> <ul style="list-style-type: none"> • Other seeds may be divided into 'other crop seeds' and 'weed seeds'... <p>...</p> <p>The percentages may be reported to more than one decimal place if requested.</p>	<p>1.5.2.2 Purity</p> <p>...</p> <p>Upon request, the following information must be reported under 'Other determinations' as follows:</p> <ul style="list-style-type: none"> • Other seeds may be divided into 'other crop seeds' and 'weed seeds'... <p>...</p> <ul style="list-style-type: none"> • The percentage by weight of specified inert matter (e.g., soil, sclerotia, ergot, smut balls, nematode galls) <u>on applicant specified weight (see 3.5.2.5).</u> • Absence or presence of components of specified inert matter (e.g., soil, sclerotia, ergot, smut balls, nematode galls) <u>on applicant specified weight (see 3.5.2.5).</u> <p>The percentages may be reported to more than one decimal place if requested. If the weight of the working sample tested for specified inert matter is more than 10 % higher than the weight specified in Table 2C, column 4 (Purity analysis), the actual examined must be reported according to the minimum number of decimal places indicated in 3.5.1.</p>

1.5.2.4

CURRENT VERSION	PROPOSED VERSION
<p>1.5.2.4 Determination of other seeds by number</p> <p>The result of a determination of other seeds by number must be reported under 'Other determinations' as follows:</p> <p>...</p> <p>If no seeds were found it can be reported as: 'No seeds of ... species were found in ... g of seed examined.'</p> <p>The sample weight examined must be reported according to the number of decimal places indicated in Table 4A.</p>	<p>1.5.2.4 Determination of other seeds <u>or specified inert matter</u> by number</p> <p>The result of a determination of other seeds <u>or specified inert matter</u> by number must be reported under 'Other determinations' as follows:</p> <p>...</p> <p>If no seeds were found it can be reported as: 'No seeds of ... species were found in ... g of seed examined.'</p> <p>The sample weight examined must be reported according to the number of decimal places indicated in Table 4A.</p> <p>The result of a determination of specified inert matter is expressed as the number of each requested specific inert matter found in the actual quantity examined.</p> <p>Upon request, the results may in addition be expressed in some other way, such as 'weight of <u>specified inert matter components</u> found' or 'number of <u>specified inert matter components</u> per kilogram'.</p> <p>If no component of the inert matter specified by the applicant was found, it can be reported as: 'No (name of <u>specified</u> inert matter) found in X g of seed examined.'</p> <p>The sample weight examined must be reported according to the number of decimal places indicated in Table 4A.</p>

Projects and workshops

Ruojing Wang

ISTA PUR Workshop

1. Seed Identification and Purity Analysis, Montevideo, Uruguay (Hosted by INASE, Vanessa Sosa, **In Spanish** 2-4th of July 2025).

- 30 participants from 6 different countries (Argentina, Brazil, Chile, Italy, Peru and Uruguay)
- How to build seed identification resources and reference
- Seed features of common plant families
- Seed morphology and identification of species in Brassicaceae and small legumes
- Steps on the identification of unknown seeds
- Purity analysis and Other Seed Determinations according ISTA Rules
- ISTA PSD definition and exercise
- Testing coated seeds

ISTA PUR WS-Uruguay

Instructors:

- Ruojing Wang
- Augusto Martinelli
- Jennifer Neudorf



ISTA PUR Workshop

2. Purity and Other Seed Determination, Oudtshoorn, South Africa

September 9-11, 2025. hosted by Klein Karoo Seed Production, Claudia Falch

- 29 participants from African countries including Ethiopia, Kenya, Malawi, Tanzania, Zambia, Zimbabwe and from the host country South Africa.

Workshop content:

- How to build seed identification resources and references
- Seed morphology and identification of common seed families and species of *Brassicaceae*, Clovers, Medicago and Grasses
- Steps for the identification of unknown seeds
- ISTA rules and reporting on purity analysis and OSD, such as PSD definitions and exercises, coated seeds, and seed mixture testing.
- Forum on the method innovation in Purity Analysis and OSD

ISTA PUR WS-South Africa



Instructors:

- Ruoqing Wang
- Augusto Martinelli
- Jennifer Neudorf



ISTA PUR Workshop

3. Seed Identification Resources and Methods, Edmonton, Canada

16-18th of June 2026, Hosted by 2020 Seed Lab, Sarah Foster.

- 15 participants from 6 different countries (Netherland (3), Germany (2), Poland (1), North Korea (1), Canada(7), Tawain (1).

Workshop content:

- How to build seed identification resources and references.
- Seed morphology and identification of species in common Families, such as Fabaceae, Brassicaceae, Asteraceae, Apiaceae, Chenopodiaceae, Poaceae, and Solanaceae.
- Steps on the identification of unknown seeds.
- ISTA Other Seed Determination (OSD) Rules, and PSD definitions.
- Forum on the method innovation in Purity analysis and OSD

ISTA-PUR WS-Canada



ISTA-PUR & MOI WS-Türkiye

ISTA Workshop on Purity, Other Seed Determination and Moisture Analysis

10–14 November 2025, Antalya, Türkiye

Selma Kurt¹ and Daniela Villa²

¹Member of ISTA Purity and Moisture Committees; Variety Registration and Seed Certification Centre (VRSCC), Ankara, Türkiye
²Vice-Chair of ISTA Moisture Committee; Council for Agricultural Research and Economics, Research Centre for Plant Protection and Certification (CREA DC), Tavazzano, Italy; daniela.villa@crea.gov.it

AN ISTA WORKSHOP ON PURITY, OTHER SEED DETERMINATION AND MOISTURE ANALYSIS WAS HELD OVER FIVE DAYS IN ANTALYA (TÜRKIYE), in November 2025. The workshop was organised in collaboration with Yüksel Seed Laboratory, under the leadership of Selma Kurt from the Variety Registration and Seed Certification Centre (VRSCC). The participants were hosted at Yüksel Tohum Seed Laboratory, located 20 km from the city centre. The activities, in accordance with the *International Rules for Seed Testing* (ISTA Rules), aimed to improve different features of purity and other seed determination tests, as well as sampling for moisture tests and moisture analysis. The workshop was designed to improve information exchange, and it allowed participants to get to know new methods and equipment. Furthermore, the event was intended to help participants to understand the ISTA Rules in seed testing methods. The workshop successfully improved the participants' expertise in three areas: sampling, testing and quality assurance.

As expected, the workshop attracted a great deal of interest. This was evident in the number of participants, with a total of 25 people in attendance. The countries represented were Latvia (1), Ukraine (1), France (1), Poland (2), Iraq (4), Italy (2), Sweden (4), India (1), Ireland (1) and Türkiye (8). The lecturers were Selma Kurt, Daniela Villa and Bülent Öztürk (ISTA Bulking and Sampling Technical Committee; Türkiye-VRSCC).

The workshop was officially opened by the Yüksel Seed Board Chairman, the Antalya Agriculture Provincial Deputy Director, the Antalya Seed Certification Test Manager and Selma Kurt on behalf of the organising committee. The opening was followed by a short round of introductions of the participants and the lecturers. The talks began with an overview of ISTA, after which the general principles of purity analysis and other seed determination were presented, as well as purity tests for coated seeds and seed mixtures. Practical training in determining other seeds



Theoretical presentation by Daniela Villa

and analysing the purity of *Triticum aestivum* subsp. *aestivum* was then carried out, giving all participants the opportunity to perform tests on all the proposed species.

The following day, Bülent Öztürk reviewed the ISTA Accreditation Standards and demonstrated quality assurance procedures in seed sampling. This lecture was followed by practical exercises in other seed determination and the purity test on *Triticum aestivum* subsp. *aestivum* and *Solanum melongena* seeds.

Day three was entirely dedicated to coated seeds and seed mixtures, with practical training on other seed determination and purity. The purification and separation of components, weighing, percentage calculations and recording of the results were demonstrated practically, and each participant was able to perform their own tests on specifically prepared samples. The identification of other seeds present in the sample was also carried out and reported.



Practical session on other seed determination

- PUR + MOI Jointed webinar, organized by Yüksel Seed Laboratory with the coordination of Selma Kurt (PUR Member)
- 25 participants from France, Latvia, India, Iraq, Italy, Ireland, Poland, Sweden, Ukraine, and Türkiye.

ISTA-PUR & MOI WS-Türkiye

Content on

- Principles of purity and OSD
- Mixtures and coated seeds
- ISTA QA Standards
- Moisture testing



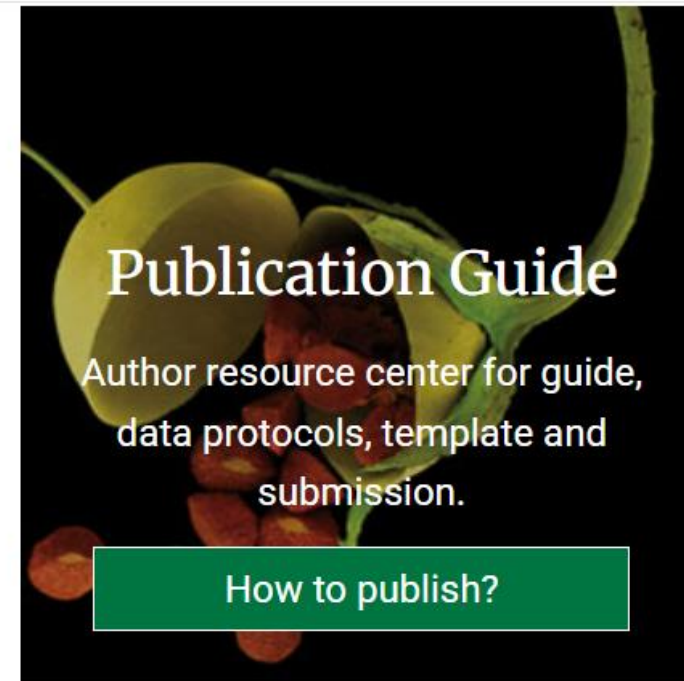
Seed Identification Guide

- 130 species of the ISTA Universal list



Seed ID Guide
Virtual publication of seed images, ID fact sheets, ID digital keys ...
ISBN: 978-1-7753419-0-1

[Launch The Tool](#)



Publication Guide
Author resource center for guide, data protocols, template and submission.

[How to publish?](#)



Training Resources
Training resources and interactive tools for seed botany, morphology and identification

[Secure Area](#)



Seed ID Forum
Peers to advise, consult, inquiry, discuss or post with the support of an invited Expert Panel

[Secure Area](#)

www.idseed.org

Summary of ISTA Special Project 20-2: The development of digital references for the ISTA Universal List of Species

Ruojing Wang¹ and Deborah J. Lionakis Meyer²

¹Project lead, Canadian Food Inspection Agency, Saskatoon, Canada; ruojing.wang@inspection.gc.ca

²Project co-lead, Seed Botanist (retired), Plant Pest Diagnostics Center, California Department of Food and Agriculture, USA

Seed Identification

Retrieving and identifying other seeds are routine diagnostic activities in purity analysis and other seed determination (OSD). Seed identification is the most difficult part of these tests to perform and is usually done by highly specialised and experienced seed analysts based on many years of training and practice. When an unfamiliar seed must be identified the process often requires an extensive search through a seed specimen reference collection and seed taxonomic references, as morphological comparison to such resources is critical to accurate identification. Confidence in morphological identification relies on the availability of suitable reference materials for experienced analysts and those in training, leading to accuracy of testing results. The development of technical references for OSD has long been requested by ISTA members and development of such references is strongly supported by ISTA.



Project co-lead Debbie Meyer, retired seed botanist from California Department of Food and Agriculture, USA



Sumia Mahmuda from IAL TEER Seed, Bangladesh

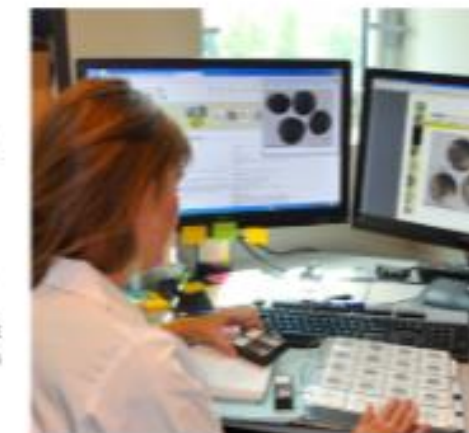
ISTA Universal List of Species

The ISTA Universal List of Species (UL) provides a basic list of commonly encountered species in OSD and purity analysis. ISTA accredited laboratories are expected, at the minimum, to be able to identify the seeds of taxa on the UL.

The objectives of the ISTA UL are:

- To state the minimum content that an ISTA accredited laboratory could be expected to have in its seed reference collection.
- To provide guidance to the ISTA Proficiency Test programme for the species that are routinely seen in samples.
- To indicate whether seeds can usually be identified at the species level.

The taxa listed in the UL are frequently present in ISTA Proficiency Test panels for OSD or purity analysis. However, physical specimens to include in a seed reference collection are not always easy to collect from verified whole plant specimens or from reliable sources of seed, especially for a newly accredited seed testing laboratory.



Digital reference for seed testing



Project lead Ruojing Wang (back, left) and team from Canadian Food Inspection Agency, Canada

Project Objectives

The ISTA Special Project 20-2 aimed to develop digital seed identification references of the 130 taxa on the UL in a web-based format, thus providing ongoing support or training to ISTA

laboratories and seed analysts. The digital data references and scientific nomenclature could be updated more easily compared to paper-based or fixed formats (e.g. PDF files) for the 130 UL taxa.

ISTA PUR Working Program

PUR Seed Definition Handbook

- Update from 2010 to current ISTA Rules

Volunteers needed for the working group of Handbook updates. Please sign up with PUR Committee (Ruojing).

Nachet: Weed Seed identification using Artificial Intelligence

- **Dr. Ruoqing Wang**

- Seed Science & Technology Section of Saskatoon Laboratory
- Canadian Food Inspection Agency

2025-10-23

Update on CFIA Nachet Tool

- Background and introduction
- Materials & methods
- Tool Demc



RGB App – Nachet: AI assisted ID

Micro-imaging with a digital microscope



How to use Nachet (Video)

Interface developed by CFIA Ai-lab

Canadian Food Inspection Agency / Agence canadienne d'inspection des aliments

Seed Classification Interface

CAPTURE

[1] - 98%

[2] - 78%

[1] - 93%

[1] - 96%

[3] - 74%

[1] - 80%

[1] - 99%

Capture 1

Developed by AI Lab

Version 0.1.0

DIRECTORIES

- Ambrosia-artemisiifolia 6
- Ambrosia-psilostachya 1
- Ambrosia-trifida 6
- Bromus-hordaceus 5
- Bromus-japonicus 9
- Bromus-secalinus 4

CACHE

- Capture 1

RESULTS

- 1 Carthus nutans 5
- 2 Bromus secalinus 1
- 3 Ambrosia trifida 1

How to use Nachet?

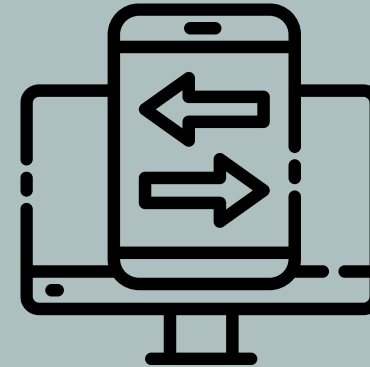
Current Priority:

- Increasing the number of weed seed species that the tool can identify
 - To do so, CFIA requires a large volume of images as well as diversity of types of images of weed seeds to train the tool
 - Aim is to expand tool's ability to be able to identify all quarantine weed seeds of Canada's major trading partners

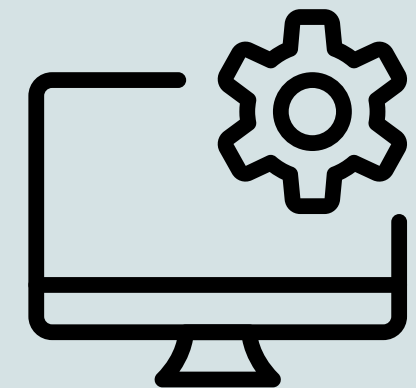
Collaborating with accredited labs across Canada:



Collecting species of
focus



Sharing images of seeds
with CFIA

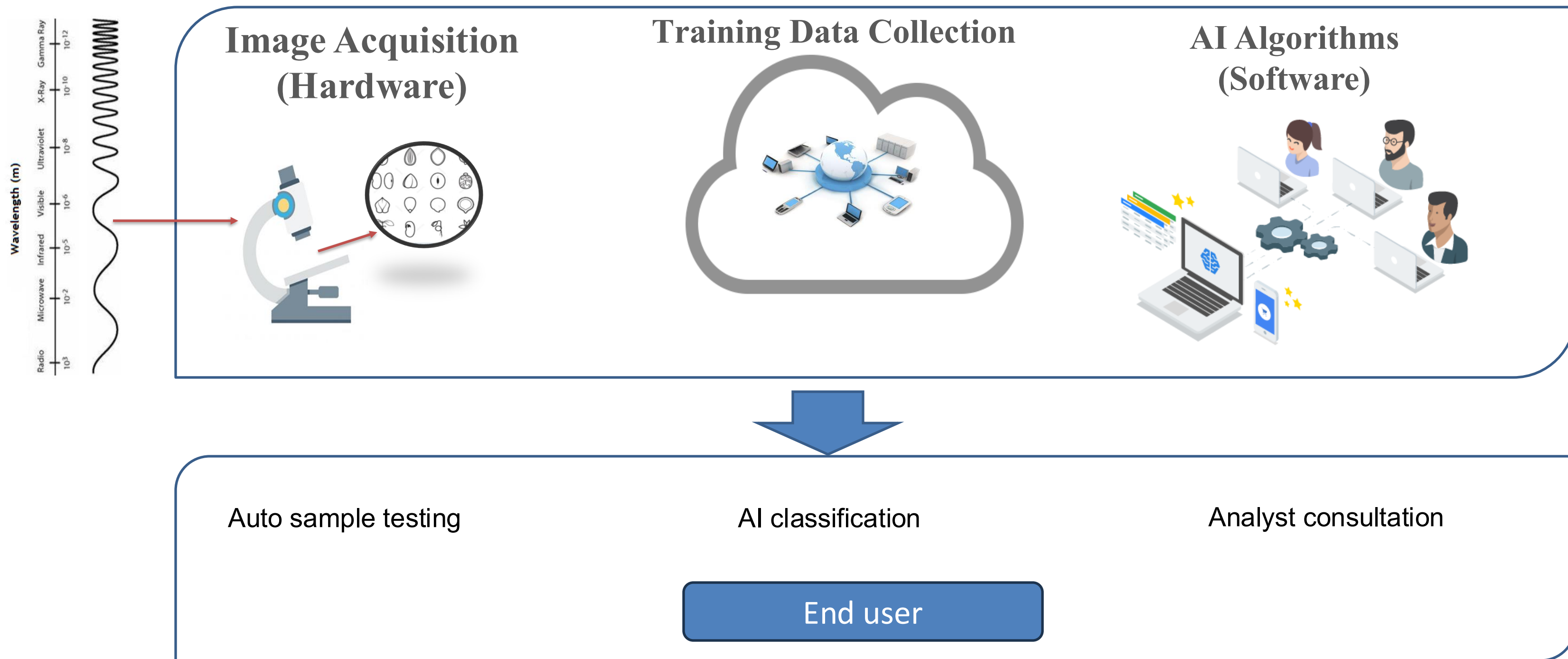



Testing & providing input on
Nachet tool

ANNUAL MEETING
22-25
June 2026



Testing innovation: Computer Vision (AI)



 **Nachet** refers to **Camille Sébastien Nachet**, a renowned 19th-century French optician and microscope maker. He played a significant role in the development of scientific instruments during the golden age of microscopy.

Here's a quick breakdown:

Who Was Nachet?


- **Camille Nachet (1799–1881)** started his career making lenses for Charles Chevalier, another famous microscope maker.
- In **1839**, he founded his own company in Paris and began producing **drum-type microscopes** ¹.
- His son, **Albert Nachet**, later joined the business and continued the legacy into the early 20th century ¹.

Why Is Nachet Important?

- Nachet microscopes were known for their **precision and craftsmanship**, often used in scientific and medical research.
- He contributed to innovations like the **inverted microscope** and **binocular designs**, adapting ideas from other inventors ².
- His instruments, such as the **Grand Modèle**, featured advanced mechanics like rack-and-pinion focusing, rotating stages, and accessories for polarized light ².

If you're into antique scientific instruments or the history of microscopy, Nachet's work is a fascinating chapter. Want to dive deeper into how his microscopes were used or what made them stand out from others of the time?

¹  stichtinghistorischemicroscopie.nl

²  microscope-antiques.com



Edit in a page

37



Thank you

38

