



# Forest Tree and Shrub Seed Committee Report

Elisa Vieira



# Agenda:

- 1- Committee activities report
- 2- Survey results
- 3- Presentation “ Multispectral image analysis for Eucalyptus and Corymbia hybrid seeds identification.”

# Members:

Elisa Vieira	Brazil
Victor Vankus	USA
Magdalena Beza	Poland
Lena Bezděčková	Czech republic
Valerie Blouin	France
Marija Gradecki-Postenjak	Croatia
Dave Kolotelo	Canada
Stefanie Krämer	Germany
Shelagh McCartan	UK
Heidi Røsok Bye	Norway
Edoardo Vincenti	Portugal
Chandrashekara Devegowda	India
Gêangelo Calvi	Brazil
Sergio Pasquini	Italy
Eugine Ojuku Olung`ati	Kenya



# Questions to the committee:

Question	Who asked
1000 seed weight of <i>Abies spp</i> , <i>Aesculus Hippocastanum</i> , <i>Cedrus spp.</i> , <i>Corylus avellana</i> , <i>Fagus sylvatica</i> , <i>Ginkgo biloba</i> , <i>Quercus spp</i> , <i>Taxodium distichum</i> , <i>Tectona grandis</i>	Moisture Committee
Germination protocols for 22 indigenous african tree species.	South Africa
Germination protocols for <i>Paulownia tomentosa</i> and <i>Paulownia elongat.a</i>	Norways
Indication of seed health laboratories for tree seed exportation in India.	India
<i>Leucaena leucocephala</i> and <i>Grevillea robusta</i> regarding the classification as agricultural and horticultural species or trees and shrubs species and the genera crop group.	Brazil
Doubts regarding the chapter 13 of ISTA Rules (Testing Seeds by Weighe Replicates) regarding the necessity of a purity test, minimun replicate weight and calculations.	Argentina

↑ Question number and new issues.

# Activities:

## 1) OECD Forest Seeds and Plant Scheme meeting

- Edoardo Vicenti (Portugal) – FTSCom representative.
- Uppsala - Sweden , April 2024
- Topics:

Discussions: somatic embryogenesis, resistance breeding, Nordic forestry and native species for regeneration.

Networking: ISF, EUFORGEN, LUKE (Natural Resources Institute Finland), NIBIO (Norwegian Institute of Bioeconomy Research), FOEN (Federal Office for the Environment of Switzerland), Stora Enzo.



# Activities:

## 2) Validation of *Khaya grandifoliola* germination test

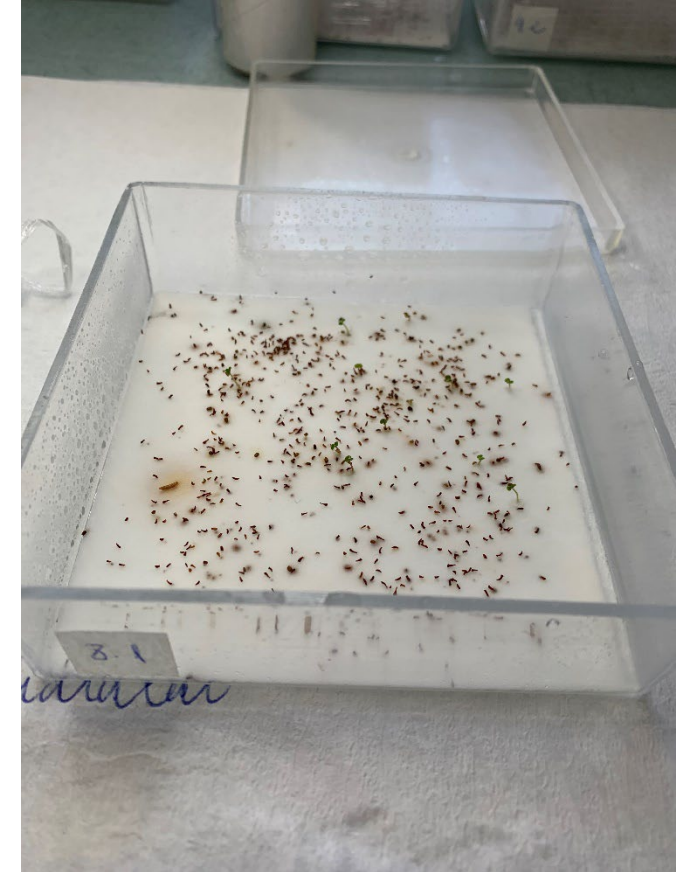
- Case study for ISTA validation methodology review – forest and shrubs species / STACom.
- 1 provenance – Rio de Janeiro (Brazil).
- 3 lots of different quality.
- 3 brazilian laboratories.
- Methodology: sand, 25°C, 12h light/12h dark, 8 replicates 50 seeds, first count 13 days – final count 21 days.
- Seedling evaluation/classification according to ISTA.



# Activities:

## 3) Excel calculator for tolerance in weighed replicates germination test.

- STACom
- Background: ISTA Congress 2022, personal request to STACom, eucalyptus seeds germination test.
- CV's study:
  - 160 weighed replicates germination tests (*Eucalyptus* and *Corymbia*)
  - Seed Testing Laboratory – Embrapa Forestry



*Eucalyptus camaldulensis* germination test – weighed replicate

# Activities:

## 4) E-handbook

- Access closed.
- Change in front end.





# Abies alba



Abies alba seeds [F.Dall'Ora 2007]

## Seed Testing

### Storage

Moisture Content - %

Remarks -

Container 1000 [ISTA 2017]

### Sampling

Maximum weight of lot - kg

Minimum submitted sample - g

Minimum working sample 120 [ISTA 2017]

### Moisture Content Determination

Grinding / Cutting If TSW 200 g: cut (high oil content) [ISTA 2017]

Remarks -

### Purity

#### Pure seed definition

51 C - Seed, without wing, with (but occasionally without) integument, provided a part of the testa is attached. Piece of seed larger than one-half the original size, without wing, with (but occasionally without) integument, provided a portion of the testa is attached 'Integument' refers to the tissue attaching the wing to the seed. In Pinaceae with PSD 51, the integument is fused to or intimately associated with the seed, is rarely removed in processing, and is impossible to consistently remove without causing damage. Hence, seed with fused or intimately associated integument attached is considered to be 'pure seed'. Winged seed (i.e. seed with an integument plus wing still attached) must be weighed and reported as a separate percentage from 'pure seed' according to paragraphs 3.5.2.9 and 3.7 (Ista Rules). After weighing, the winged seed and pure seed fractions should be recombined and used in representative proportions for counting out the germination replicates. [ISTA 2017]

### Thousand seed weight

Thousand seed weight - g

## Germination

Substrate	-
Temperature	2030 [ISTA 2017] °C
First count	7 [ISTA 2017] d
Final count	28 [ISTA 2017] d
Recommend for breaking dormancy	Prechill 21 d [ISTA 2017]
Additional directions	- [ISTA 2017]
Additional advice	- [ISTA 2017]

## Tetrazolium

Instruments	Prepare the dry seeds or W/18 [ISTA 2017]
Pretreatment: type/min. time	- h
Preparation before staining	1 [ISTA 2017]
Staining solution	- %
Optimum staining time	Cut longitudinally through endosperm and expose embryo; remove seed coat- If W/18: Expose embryo; remove seed coat [ISTA 2017]
Preparation for evaluation	-
Permitted non-viable tissue	None, except small superficial necrosis on outer part of endosperm, not in connection with embryo cavity [ISTA 2017]
Remarks	Old and dry seeds may give more consistent results if imbibed for 48 h [ISTA 2017]

## General Information

### References

References Conti F., Abbate G., Alessandrini A., Blasi C. 2005, An Annotated Checklist of the Italian Vascular Flora, Ministero dell'Ambiente della Tutela del Territorio, D.P.N. e Dip. di Biologia Vegetale, Università degli Studi di Roma "La Sapienza", Palombi.



Germination test: seedling development. [ISTA 2018]



Germination test: the seedling is yellow or white (abnormal type 00-06). [ISTA 2018]



Germination test: the seedling releases the cotyledons before the primary root from the seed coat (abnormal type 00-03). [ISTA 2018]



Germination test: the seedlings are decayed as a result of primary infection (abnormal type 00-09). [ISTA 2018]



Germination test: the primary root is decayed as a result of primary infection (abnormal type 11-12). [ISTA 2018]



Tetrazolium seed testing: preparation step(s). [ISTA 2003]



# Activities:

## 4) E-handbook

- Access closed.
- Change in front end.
- Several discussion → Genera or species
  - International trade
  - Domestic trade



# Activities:

## 5) Survey

- ISTA accredited laboratories with forest and shrub species in scope.

Google Forms:

### ISTA Forest Tree and Shrub Seed Committee Survey

Dear ISTA accredited laboratories with forest and shrub species in the scope, the Forest and Shrub Committee is conducting a survey to gather information about the species tested. The information will be useful to guide the committee's activities and to give an idea of the forest and shrub seeds trade.

We suggest to read the questions first, organize the information and then answer. You will take approximately 20 minutes to answer them.

The information will be used by ISTA, it will remain confidential and will be summarised for reporting in the activities of the technical committee.

Please send your answers by the 15 of June 2024.

Thank you for participating and be sure that your contribution is very important!

- OECD Forest Seed and Plant Scheme reports.



- FTSCom members
- ECOM Liaison Officer: Steve Jones
- Secretariat

Thank you !!!

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

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