

# ISTA MOISTURE COMMITTEE



# Members ISTA MOI

- Harry Nijenstein (chair)
- Jette Nydam (vice-chair)
- Joseph Ahenda
- Olfat H El Bagoury
- Mark A Bennet
- Patricia Berjak
- Matt Daws
- Ronald Don
- Johannes Dornhecker
- Deon Erdey
- Peter George Harrison: no response --> out
- Robert Karrfalt
- Maria-Rosaria Mannino
- Craig McGill
- Maria Angela Tillman



# PROGRAMME

- Validate new species/methods for the Rules.
- Improve the existing Rules (orthodox seeds + general)
- Improve the existing Rules (non-orthodox seeds)
- Organise proficiency testing + come to rating system
- Organise comparative testing + literature review
  
- Amalgamation + major revision of Chapter 9
- Workshop
- Handbook



# VALIDATE NEW SPECIES/METHODS

- Low temperature method:
  - oil contents 9.9 - 46.9%
- High temperature oven method:
  - oil contents 0.6 - 38.1%
- Present classification in ISTA Rules probably not appropriate
- Split at 15% oil content?
  
- Karl Fischer
  - expensive
  - difficult to learn
  - not widespread available among moisture committee members
- Alternative basic reference methods have same or other disadvantages
- Suggestion to abandon Karl Fischer, and use the oven for validating new species instead



# IMPROVE EXISTING RULES (basic reference method)

If two experts on the constituents of seeds independently or one expert+literature confirm that

- a species does not contain any volatiles, and
- the tkw is less than 5 gram, and
- the seed does not have an impermeable seed coat,

then the method will be one hour at 130°C.

If validation based on experts and/or literature is not possible, the procedure will be:

- Dry for at 70°C, 103°C and 130°C. Assess weight every 10 minutes for 4 hrs maximum. No change anymore = less than 0.001 gram difference.
- If all three methods result in the same percentage, the new method will be: the closest number of full hours at 130°C after which no change in weight occurred anymore. The tolerance for coming to the conclusion 'same' will be 0.2%.
- If the 70°C and the 103°C method result in the same percentage, the method will be .. hrs at 103°C.
- If there is a difference between the results at 70°C and 103°C, the temperature will be 103°C, and the length at this temperature will be the length at which the result would be the same as the final result at 70°C.
- If the final weights of both temperatures are not the same, the method will be at 103°C for a period as long as it took to show no change anymore.



# IMPROVE EXISTING RULES (non-orthodox)

- Scientific work: working group of Deon Erdey
- Scientific sound vs practical needs
  - tremendous variation in moisture contents of different parts of non-orthodox seeds
  - tremendous variation in seed-to-seed variation of m.c.
  - tremendous variation in seed sizes
- Survey to ISTA stations, seed banks, ISTA membership, Institutes, Universities, ....
  - what non-orthodox species do you deal with (commercially and conservation)
  - what moisture methods do you apply
- How to validate new species
- What method to use as basic reference



# IMPROVE EXISTING RULES (general)

- Aim at major revisions in 2007
  - Results working groups (species, methods)
  - Results proficiency tests
  - Results enquiry 2004
  - Results enquiry non-orthodox seeds
  - Remarks made during workshop(s)
  - Remarks made by members throughout the years
- First draft in 2005
- Second draft in 2006
- Final proposition in 2007



# ORGANISE PROFICIENCY TEST

- Wait for results of test round 04-1 + enquiry
- Establish rating system
- Two more Proficiency Tests in 2004-2007:
  - 05-2 Secale cereale
  - 07-2 Medicago sativa



# WORKSHOP

- November 2003: first workshop at the Danish Plant Directorate
  - 19 participants from Europe, United States and New Zealand
- Workshop in Thailand (May 2005): canceled.
- Investigate possibilities for
  - New Zealand (February 2006)
  - Africa (2006?)
  - Americas (2007?)



# **HANDBOOK-suggested table of contents**

- 1+2+3. Table of contents + Acknowledgements + Preface**
- 4. Introduction**
- 5. Moisture in seed**
- 6. Importance of moisture testing (purpose, aims)**
- 7. History of moisture testing**
- 8. Sampling and sample preparation (refer/compare to handbook + chapter in the rules)**
- 9. Reference method (One or more?)**
  - 9.1. Advantages/disadvantages per method**
  - 9.2. Methodology**
  - 9.3. Background to methods**
- 10. Separate chapters for each method used to assess seed moisture**
  - 10.1. Background to each method**
  - 10.2. Equipment**
  - 10.3. Examples + descriptions per item (no brand names)**
  - 10.4. Use (including cleaning, WHY, CLEAR (one way to understand)**
  - 10.5. Monitoring**
  - 10.6. Calibration (methods, frequencies, particularities per species if known)**
  - 10.7. Quality Assurance in general**
  - 10.8. Advantages/disadvantages per method**
  - 10.9. Expand methodology from rules??**
- 11. Validation of new methods and/or species**
- 12. Glossary / definitions**
- 13. References**

