



# **Seed Storage Committee**

**Report to ISTA Ordinary  
Meeting, June 2006, Zurich,  
Switzerland**

# Committee members

- Prof T Aveling – SA
- Dr M Bennett - USA
- Prof P Berjak – SA
- Dr R Blanco – Spain
- Dr C de la Cuadra – Spain
- Dr O Elbagoury – Egypt
- Mr D Erdey – SA
- Dr E González-Benito – Spain
- Dr P León-Lobos – Chile
- Dr I Martin - Spain
- Prof M McDonald – USA
- Dr H Msanga – Tanzania
- Prof D Mycock - SA
- Prof H Pritchard - UK
- Dr M Sacandé – Burkino Faso
- Dr C Wood - UK

# Working Group 1 – Orthodox Seeds

- **Micro-organisms**
- **Cryostorage and genebanking**
- **Invigoration**
- **Development of methodologies**
- **Other aspects**



# Working Group 2 – Non Orthodox Seeds

- **Micro-organisms**
- **Storage**
- **Responses to manipulation**
- **Development of methodologies**



# Orthodox Seeds – Micro-organisms

## Aveling

**Study** - Testing stored maize produced by subsistence farmers (KwaZuluNatal and S Mocambique) for germinability and fungal status.

**Results** – Germination ranged from 2.0 – 93.5%; Seed infected with *Aspergillus*, *Fusarium*, *Penicillium* and *Rhizopus* spp. Study reveals that method of storage important in the performance of the seed lots

# Orthodox Seeds – Cryostorage and genebanking

de la Cuadra & Martin CRF-INIA genebank

**Study** – Compare seed accession viability  
after 10 and 20 years of storage

Accessions from 9 genera

Active collections - <7% and -4°C

Base collections - <7% and -18°C

# Active collections - results

Genus	No Accessions	G10	G20	% accessions with G10-G20 > 15%
<i>Avena</i>	258	91.2	93.3	3.88
<i>Hordeum vulgare</i>	540	95.0	97.7	0.00
<i>Triticum</i>	89	94.0	91.4	5.62
<i>Secale cereale</i>	63	83.1	78.2	6.35
<i>Zea mays</i>	314	91.3	88.1	8.92
<i>Vicia complex</i>	315	93.8	93.4	0.95
<i>Lens culinaris</i>	31	92.2	89.5	6.45
<i>Phaseolus vulgaris</i>	65	86.7	78.9	29.23

# Base collections - results

Genus	No Accessions	G10	G20	% accessions with G10-G20 > 15%
<i>Avena</i>	621	92.4	95.5	0.16
<i>Hordeum vulgare</i>	557	95.4	98.2	0.00
<i>Triticum</i>	159	95.6	96.4	0.00
<i>Zea mays</i>	119	92.4	93.7	0.00
<i>Vicia complex</i>	399	94.2	95.1	0.25
<i>Lens culinaris</i>	110	94.3	94.7	0.00
<i>Phaseolus</i>	84	93.2	86.6	21.43
<i>vulgaris</i> <i>Lupinus albus</i>	489	94.7	94.4	2.86
<i>Lycopersicon</i>	74	94.5	94.1	0.00

# Orthodox Seeds – Cryostorage and genebanking

**González-Benito**

**Study** – testing accession (+75) viability  
of members of the Brassicaceae after  
40 years in storage

**Seed dried to 0.3 and 3% with silica gel  
and stored in sealed glass vials  
(containing silica gel) at -5°C to -10°C**

# **González-Benito - results**

- **Germination capacity maintained at levels similar to that of the seed when placed into storage.**
- **Some accessions entered secondary dormancy – moisture content dependent**
- **Data collectively support the use of ultra-dry methods**

# **Non Orthodox Seeds – Micro-organisms**

**Berjak & Erdey**

**No reports received but promised for triennium report**

# Non Orthodox Seeds - Wet Storage


**Berjak**

**No report received but promised for triennium report**

# Non Orthodox Seeds - Crystorage

## Berjak

- Investigating the cryostorability of several indigenous plants e.g. *Amaryllid* spp, *Ekebergia capensis*, *Syzygium cordatum* and *Trichilia* spp



# **Non Orthodox Seeds – Responses to manipulation**

**Berjak; Pritchard, Wood, Sacandé**

**No reports received but promised for  
triennium report**

# Non Orthodox Seeds – Development of Methodologies

- **Mycock**

**Study - Cryostorage of alternative tissues, axillary buds of *Eucalyptus* spp, somatic embryos endangered protea**

**Results – callus and somatic embryos can be stored whereas vegetative tissues (axillary buds) less amenable to cryostorage**

# Seed Storage Handbook

- Editor required to drive the process

