

12. STO Storage Committee

Chair:	Hugh W. Pritchard	United Kingdom	(also FTSS)
Vice:	David Mycock	RSA	
Members:	Patricia Berjak & N. Sershen ¹	RSA	
	Oble Neya	Burkina Faso	New member
	Ramni Jamnadass	Kenya	New member
	S. Adesola Ajayi	Nigeria	
	Celia de la Cuadra & Isaura Martin ¹	Spain	
	Andreas Börner	Germany	New member
	Moctar Sacandé	United Kingdom	
	Elena Gonzalez-Benito	Spain	
	Isolde Ferraz	Brazil	
	Pedro Leon-Lobos	Chile	
	Xiang-yun Yang	China	
	Sarah Ashmore	Australia	
	Rekha Chaudhury	India	New member

¹ shared responsibility

B Publications

B.1 Publications to accompany the Rules

	Publication title	Proposed finalisation	Progress June–Dec 2010
1	Handbook on Seed Storage (with MOI, Seed Health)	2013	Book outline has been forwarded to members, including suggested allocation of chapters, for consultation

B.2 Training publications on specific seed testing topics

	Publication title	Proposed finalisation	Progress June–Dec 2010
1	Summary and analysis of questionnaire on seed storage as practiced in ISTA laboratories.	Seed Testing International in 2011	Summary of questionnaire findings presented by the Chairman at the 2010 ISTA Congress in Germany. Article in preparation.

B.3 Scientific information publications

	Publication title	Proposed finalisation	Progress June–Dec 2010
1	Scientific review of 'Rules' species storage response, as reference guide. (NB Could appear as an Appendix to the Handbook)	2011-12 in SS&T	Summary table of storage conditions for many of the ISTA Rules species was presented by the Chairman at the 2010 ISTA Congress in Germany. Article in preparation by committee members Pritchard and Sacande.
2	Scientific publications: 30 papers/ book chapters	2011-13	<p>Berjak, P., Bartels, P., Benson, E., Harding, K., Mycock, D.J., Pammenter, N.W., Sershen & Wesley-Smith, J. (2010). Cryo-conservation of South African plant genetic diversity. <i>In Vitro Cell. Dev. Biol. – Plant</i>. Online 26th Oct 2010</p> <p>Galindez, G.; Ortega-Baes, P.; Seal, C.E.; Daws, M.I.; Scopel, A.L.; Pritchard, H.W. (2010). Physical seed dormancy in <i>Collaea argentina</i> (Fabaceae) and <i>Abutilon pauciflorum</i> (Malvaceae) after 4 years storage. <i>Seed Science and Technology</i> 38, 777-782</p> <p>Kranner, I., Chen, H., Pritchard, H.W., Pearce, S. R. and Birtic, S. (2011) Inter-nucleosomal DNA fragmentation and loss of RNA integrity during seed ageing. <i>Plant Growth Regulation</i> 63, 63-72.</p>

C Workshops and Seminars

C.1 Training and education workshops

	Workshop subject and location	Proposed finalisation	Progress June–Dec 2010
1	Water Activity, Montargis, France (Patrick Baldet, Cemagref; Fabienne Colas) with MOI, FTSS	2010	From 13-15 Oct 2010, participants from 13 countries, including Brazil, Germany, Spain, the Netherlands, USA, attended this three-day workshop on the theoretical considerations and practical measurement of water activity. The seed trade has an estimated annual turnover of \$37 billion and the maintenance of seed quality (shelf-life) is critical to business efficiency. Patrick Baldet and colleagues at Cemagref - U.R. Ecosystèmes Forestiers, France, hosted the workshop and did an excellent job. Faculty was drawn from Cemagref staff and three ISTA science committees: Moisture (Robert Karrfalt and Harry Nijenstein); Seed Storage (Hugh W. Pritchard); Forest Tree and Shrub Seed (Fabio Gorian).
2	Desiccation tolerance workshop, South Africa (Pat Berjak)	2012	

F Special (Research) Projects

	Project title/Subject and collaborating committees	Proposed finalisation	Progress June – Dec 2010
1	Focus on characterising seed storage characteristics of 100 'new' species	2011-13	(RSA Mycock) <i>Protea roupelliae hamiltonii</i> (critically endangered) characterised as orthodox as successful seed storage for 2 years at -196, -70 and 4 °C. Germination parameters have been defined and population augmentation has been successful. We are also working on several threatened and endangered species from this genus <i>Leucospermum</i> .
2	Develop 5 innovations / new technologies (cryopreservation, syn-seeds', thermal fingerprinting, etc) with seeds (or embryos).	2011-13	(UK) One innovation on loss of RNA integrity during seed ageing (Kranter et al., 2011). As seeds of pea lost viability during ageing, DNA was gradually degraded into internucleosomal fragments, resulting in DNA 'laddering', in conjunction with disintegration of 18S and 28S rRNA bands. During imbibition, non-aged controls had high levels of DNA and RNA integrity through to radicle protrusion. In an aged seed lot with 85% total germination DNA fragmentation decreased upon imbibition probably due to nucleosomal degradation, while rRNA did not improve. In an aged seed lot with 44% germination, neither DNA nor rRNA integrity improved upon imbibition. The results suggest that protection of both DNA and RNA during ageing is key to seed longevity and that degradation when seed lots are at high viability is an innovative marker for the start of seed viability loss. (RSA, Mycock) Continuing our investigations on stress physiology associated with cryo-processes with <i>Eucalyptus</i> species and hybrids.
3	Maximise dry storage potential (including seed health) for seeds of 70 species	2011-13	