



Cone and Seed Improvement Program BCMoF Tree Seed Centre

from Seed and Seedling Extension Topics
Volume 8 Winter 1995



Seed Coat Structure

For those interested in conifer seed coat structure, but frustrated by the lack of information available these two articles will be of interest to you. Citations and some brief notes on the research findings are presented below.

Tillman-Sutela, E. and A. Kappi. 1995. The morphological background to imbibition in seeds of *Pinus sylvestris* L. of different provenances.

Trees 9: 123-133.

- ♣ the seed coat layers did not restrict water uptake (imbibition) to any extent
- ♣ imbibition was chiefly regulated by the membranes surrounding the megagametophyte
- ♣ a deviation from the standard triple-layer seed coat was found in the most northern provenance - a double multicellular layer in the outer seedcoat layer was found

Tillman-Sutela, E. and A. Kappi. 1995. The significance of structure for imbibition in seeds of the Norway spruce, *Picea abies* (L.) Karst.

Trees 9: 269-278.

- ♣ the seed coat layers did not restrict water uptake (imbibition) to any extent, despite the presence of wax filled cells
- ♣ imbibition was chiefly regulated by the membranes surrounding the megagametophyte
- ♣ *Picea abies* and *Pinus sylvestris* consist of the same structures, but differences in seed coat and membrane structure are significant for imbibition
- ♣ the authors hypothesize that the waxy layer in *Picea abies* may explain why it is difficult to bring the moisture content up to the 30% required for IDS incubation
- ♣ the authors hypothesize that the way the micropyle (point of radicle emergence) opens may cause the difficulty noted in achieving a sufficient difference in density between viable and non-viable spruce seeds by the IDS method

These papers are an important contribution to the literature on seed coat morphology and its relation to the process of imbibition. The papers are quite detailed and assume a good knowledge of conifer reproductive biology. For those interested in these subjects please obtain copies directly from the author as the included electron micrographs and coloured plates do not photocopy well. Requests can be addressed to E. Tillman-Sutela, The Finnish Forest Research Institute, P.O. Box 16, SF-96301 Rovaniemi, Finland.

David Kolotelo, RPF
Cone and Seed Improvement Officer
Dave.Kolotelo@gems7.gov.bc.ca
(604) 541-1683 extension 228