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Les sciences forestières au-delà des frontières

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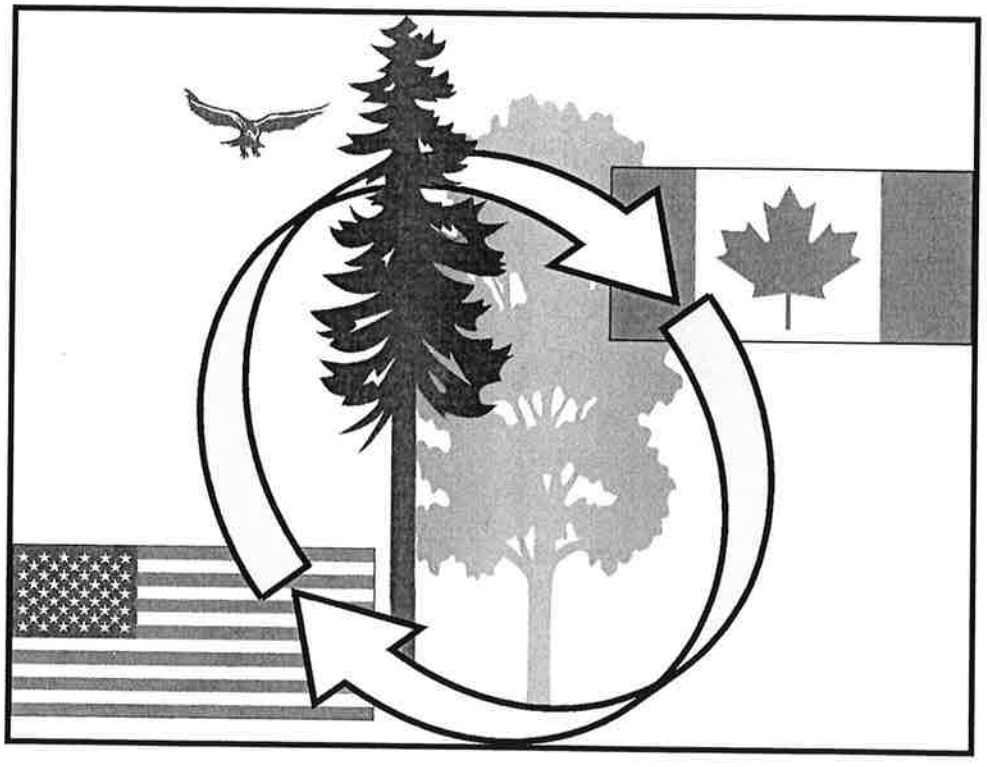

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Ressources naturelles et Faune Québec
UNIVERSITÉ LAVAL
Faculté de foresterie et de géomatique

From seeds to plantation: Thirty years of research development at the operational level to improve white spruce productivity

Rainville, André[1], Fabienne Colas[2], Mohammed S. Lamhamedi[2], Laurence Tremblay[2,3], Denise Tousignant[2], Guy Prégent[2] and Jean Beaulieu[4]

In Québec, approximately 135 million seedlings are planted annually. One particularity of the reforestation program is that the provincial government has the responsibility for producing both seeds and seedlings, delimiting seed zones and establishing transfer rules. This situation creates a unique opportunity for rapid transfer of research advances to the operational scale. Due to its superior growth and wood quality, white spruce is one of the most important species for reforestation; approximately 25 million seedlings are planted annually, of which 85% are grown from genetically improved seeds. By capitalizing on the knowledge and material gained from more than 30 years of tree improvement, seed orchard management, nursery cultural practices and tree seedling production through rooted cuttings and somatic embryogenesis, Québec is in a position to increase its forest productivity by reforesting with improved material. New tools are also being developed to support operational research, such as molecular studies, which will help tree improvers carry out selections, or combined models to estimate the impact of climate change on seed zones as well as on plantation yield. Plantation of improved material will not only reduce the increasing pressure on natural forests, but also play a determining role in the face of environmental, economic and social issues.

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Theme: Tree physiology, carbon and nutrient cycles and genetics