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GenomeCanada

AdapTree: Assessing the Adaptive Portfolio of Reforestation Stocks for Future Climates

Status	Approved
Competition	2010 Large-Scale Applied Research Project Competition
Sector	Forestry/Environment
Genome Centre	Genome British Columbia
Project Leaders	Sally Aitken, University of British Columbia, and Andreas Hamann, University of Alberta

Project Description

Adapting to climate change. Climate change is causing a mismatch between the natural genetics of trees and the locations where they grow. Seedlings that were once well adapted to a specific region are now poorly adapted to their environment due to changes caused by climate change. Over the past decade, this maladaptation is showing up in higher losses due to pests like the mountain pine beetle in British Columbia and drought-related dieback in Alberta. With funding from Genome Canada, scientists are applying state-of-the-art technologies from genomics as well as geospatial analysis and climate modeling to two of the most important western Canadian trees - lodgepole pine and spruce. Every year about \$10 billion worth of timber is harvested in these provinces. The volume of this harvest is expected to decline by 35% this century.

Scientists are sequencing seedlings to better understand what genes are involved in adaptation to local climate conditions. This will lead to ensuring that the right trees get planted in the right climactic areas, improve the long-term health of forests and generate economic benefits of hundreds of millions of dollars every year. A range of stakeholders have been engaged to better understand the socioeconomic issues involved, leading to policy recommendations for better forestry management.