Ministry of Forests, Lands, Natural Resource Operations and Rural Development

Climate-Informed Investments for Forest Enhancement and Carbon

Information Note #2 - Best Practices for Seed Use in a Changing Climate

October 26, 2017

Introduction

To ensure British Columbia's forests and ecosystems are healthy, resilient and productive, the ministry of Forests, Lands, Natural Resource Operations and Rural Development (FLNR) oversees and manages a robust science-based Forest Genetic Resource Management (GRM) program. This program produces seed that delivers improved tree growth and pest resistance, maintains genetic diversity, and ensures that seedlings are adapted to their growing site conditions and climate.

Purpose

This best practices information note is designed to assist FES and FCI proponents who are planning projects that include establishment of plantations for forest carbon, enhancement, or rehabilitation purposes, to select the most appropriate tree seed.[1]

Objectives

Proposals reflect beneficial practices for carbon-informed investments when they meet the following objectives:

1. Apply available Climate-Based Seed Transfer science and knowledge:
   - The Climate Based Seed transfer (CBST) project is part of a ministry-wide response to adapt natural resource [forest] management policies and practices to a changing climate **by improving the matching of seed sources to the climate of planting sites**; and,
   - Use the CBST Seedlot Selection Tool (available for interim use) or CBST seed selection / ordering features in SPAR (when available in late 2017) to guide seedlot selection for FFT, FES and FCI reforestation projects. Note that use of CBST for reforestation under FRPA requires approval of a CBST alternative to section 8 of the *Chief Forester's Standards for Seed Use* until new CBST Standards come into effect (anticipated in 2018).

2. Use tree seed of the highest available Genetic Worth (GW):
   - The best tree growth and carbon sequestration comes from tree seed with a high GW;
   - On good sites (e.g. high Site Index) within the Timber Harvesting Land Base (THLB)[2], **use seed with the highest available GW** to provide the best return on public investment (recognizing that seed cost remains a small fraction of the value increase expected at future harvest); and,
   - On poor sites (e.g. low Site Index) or those sites not within the THLB, use seed with the highest available GW **subject to consideration of seed supplies required to meet planting needs <u>within</u> the THLB, especially where seed with high GW is in, or forecast to be, in short supply.**

3. Maintain genetic diversity at the landscape level. Use a range of climatically suitable genetically-adapted seed sources of the highest GW.

[1] In this document, "seed" includes both seed and cuttings (i.e. seed and vegetative lots)

[2] THLB is a modelling construct in TSR used to describe the land base where forest harvesting is expected to occur.

4. Meet or exceed the seed use requirements for reforestation of Crown Land under FRPA:
   - Ensure seed use practices are consistent with the *Chief Forester's Standards for Seed Use*;
   - Use the "Seed Planning and Registry" (SPAR) system for seed planning and ordering; and
   - Report seed use in "RESULTS."

Strategic, Operational and Tactical Approaches

Strategic Approaches

1. Align seed use with tree species selection for a changing climate (*See Info Sheet #1 - Best Practices for Tree Species Selection in a Changing Climate*).
2. During the Province's transition to new CBST policy, both current transfer standards and CBST standards will apply concurrently for a period of time. Subject to seed availability during the transition, the policy options are best used in this order of priority:
   1. CBST and Class A seed with the highest GW available;
   2. Current Transfer Standards and Class A seed with highest GW available;
   3. CBST and Class B seed; then,
   4. Current Transfer Standards and Class B seed.

Operational and Tactical Practices

- Plan ahead. Anticipate and plan for short and long term seed needs. Check species plan forecasts (see Forest Genetics Council link under "more information") for a look ahead as to what tree species and orchards are planned / coming online, including the production of insect and disease-tolerant and resistant seed sources; and,
- Coordinate. Ensure availability of seed is confirmed with seed owners (e.g. Forest for Tomorrow) and/or those entering seedlings on your behalf (e.g. BCTS) to optimize long term planning efforts; and, to avoid unintended gaps or seed shortages.

For more information:

- Climate Based Seed Transfer (CBST)
- Chief Forester's Standards for Seed Use
- Forest Genetic Council of British Columbia, Species Plans: http://www.fgcouncil.bc.ca/

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