



# Climate-Informed Investments for Forest Enhancement and Carbon

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

December 9, 2019

### 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.<sup>1</sup>

### Objectives

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

1. 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)<sup>2</sup>, **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 within the THLB, especially where seed with high GW is in, or forecast to be, in short supply.**
2. Apply 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.
  - Subject to strategic approaches identified on page 2, **use CBST standards<sup>3</sup> for seedlot selection for FFT, FES and FCI reforestation projects.** These standards were incorporated into the CBST seed selection / ordering features in the "Seed Planning and Registry" (SPAR) in April 2018, and are also available in the CBST Seedlot Selection Tool during the transition to CBST Standards.

<sup>1</sup> In this document, "seed" includes both seed and cuttings (i.e. seed and vegetative lots)

<sup>2</sup> THLB is a modelling construct in TSR used to describe the land base where forest harvesting is expected to occur.

<sup>3</sup> Amendments to the *Chief Forester's Standards for Seed Use* incorporate the optional use of CBST and align wild-stand cone collection requirements with CBST (effective August 6, 2018). See, also **April 2019 Amendments** that include refinements to **CBST Areas of Use** (effective Aug. 12, 2019).



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3. **Maintain genetic diversity at the landscape level.** Use a range of climatically suitable genetically-adapted seed sources of the highest GW.
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 "SPAR" 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 geographically-based seed transfer (GBST) standards and CBST standards will apply concurrently. 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. GBST and Class A seed with highest GW available
  3. CBST and Class B seed
  4. GBST 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.
- 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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