



Land & Forests

Trends in Forest Tree Seed Use in B.C. (1987-2023)

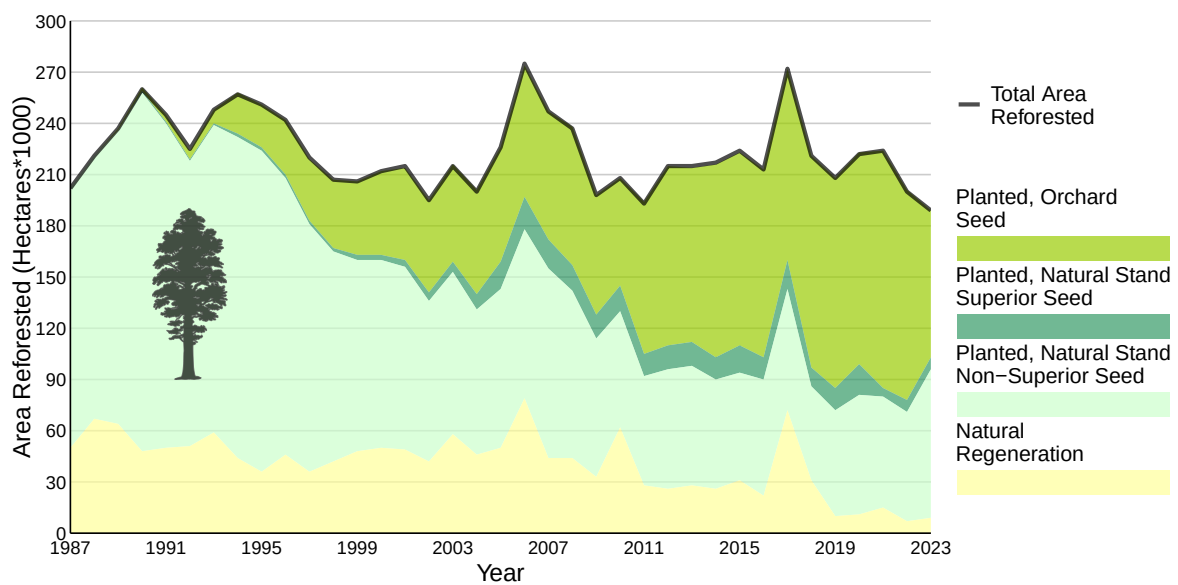
Conserving, protecting and managing forest tree genetic resources is the foundation for economic, social, cultural and ecological goods and services that flow from British Columbia's forests. Tracking forest tree seed use from source to planting site is important for assessing B.C.'s forest genetic resources. This information supports the continuous improvement of genetic conservation and resource management plans, strategies and actions, including seed use best management practices used in reforestation. This indicator investigates the trends in forest tree seed use in regenerating B.C.'s forests from 1987 to 2023.

- Maintaining genetic diversity ensures forest ecosystems are healthy, diverse, and productive. Genetically diverse forests are more resilient to natural disturbances and climate change.
- The average area of B.C.'s crown land reforested through planting over the past ten years is approximately 195,700 hectares per year (2014-2023). This 10-year average is slightly more than the previous average of approximately 177,400 hectares per year (2004-2013).
- Select seed is tree seed that is collected for specific genetic traits such as growth, pest resistance, and wood density. Select seed is sourced from orchards and natural stands. The proportion of crown land planted with select seed has steadily increased over the past two decades and was 68% of tree seed use in 2023.
- Climate Based Seed Transfer is a climate adaptation strategy that matches seed sources (seedlots) to climatically suitable planting sites. The strategy was fully implemented in 2022 through amendments to the [Chief Forester Standards for Seed Use](#)

Visit [Tree Seed](#) to learn more about tree seed use in B.C., and the provincial [Tree Improvement Program](#), which helps guide reforestation and silviculture investments through forest genetic research, tree breeding and seed orchard programs. Visit [Climate Based Seed Transfer](#) to learn about the science, policy, and tools available to help make suitable climate based seed transfer choices.

Forest Regeneration by Tree Seed Source in B.C. (1987-2023)

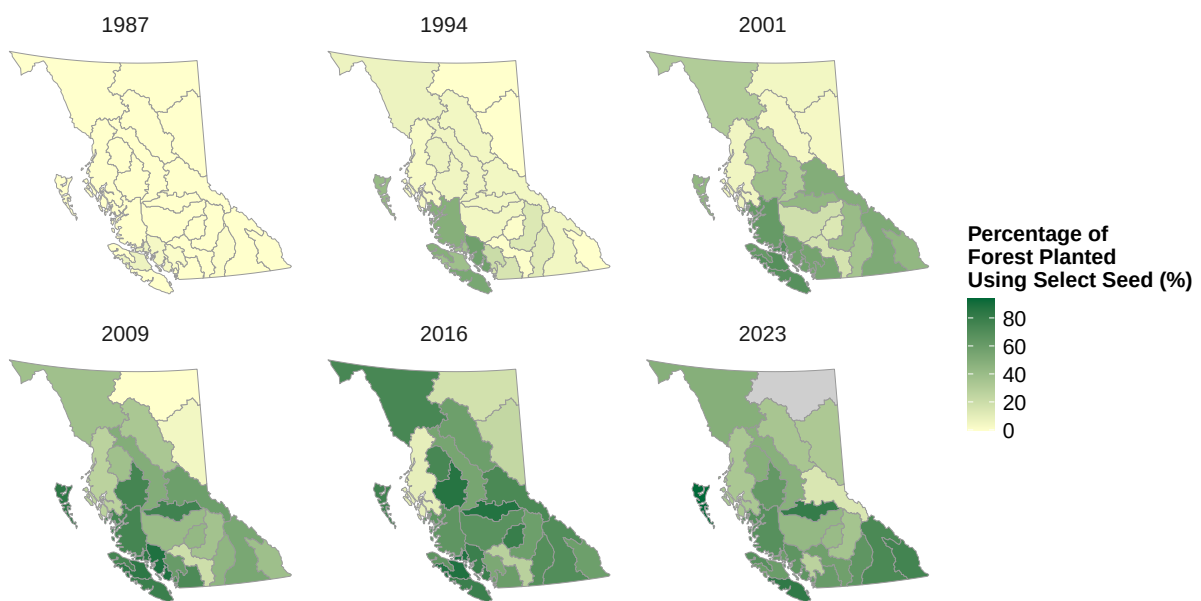
- After a disturbance by forest fire, forest pest or forest harvest, reforestation occurs by natural regeneration or by planting. Seed used for planting may be from one or more genetic sources: orchard, natural stand superior provenance (superior seed), and natural stand non-superior provenance (non-superior seed).
- Extensive research trials have shown that orchard and natural stand seed sources are better for tree growth, pest resistance, and wood density.
- The area of B.C. that is planted instead of naturally regenerated has changed from 1987 to 2023. In 2023, the most used seed source was natural stand non-superior (45.8%), followed by orchard (45.5%), natural regeneration (4.7%), and natural stand superior (3.9%). Prior to 2023, orchards were the most common seed source over the past 10 years.



**Note: Data for the 2017–2023 period is incomplete pending reporting of planting and natural regeneration field surveys

Select Seed Use by Natural Resource District in B.C.

- Trends in select seed use are variable at the natural resource district level. This is partly due to the availability of regionally-specific tree species in orchards. Annual or periodic fluctuations in orchard cone crops and seed inventories also influence select seed use at local levels.
- Select seed use has increased provincially at a steady rate since the early nineties: 1987 - 0%, 1994 - 12%, 2001 - 35%, 2009 - 51%, 2016 - 64% and 2023 - 52%.
- The maps below display the percentage of select seed use by natural resource district reported in 6-year snapshots from 1987 to 2023. In 2023, the percentage of select seed used ranged from 15% in Omnic Natural Resource District to 94% in Haida Gwaii Natural Resource District.



References and Other Useful Links

- Learn more about [Tree Seed](#)
- Learn about [trends in silviculture in B.C.](#)
- [Operational Tree Improvement Program](#)
- [Seed Planning and Registry Application \(SPAR\)](#)
- [Chief Forester Standards for Seed Use](#)
- [Climate Based Seed Transfer](#)
- [Forest Genetics Council of British Columbia](#)

Data

*By accessing these datasets, you agree to the license associated with each file, as indicated in parentheses below.

- [Indicator Summary Data: Forest Regeneration by Tree Seed Source in B.C. \(1987-2019\)](#) (Licence: [Open Government Licence - British Columbia](#))
- [Indicator Summary Data: Select Seed Use by Natural Resource District in B.C. \(1987-2019\)](#) (Licence: [Open Government Licence - British Columbia](#))

For more information on this indicator or on Forest Tree Seed Use in British Columbia contact the Forest Improvement and Research Management Branch at FORHTIP.SEEDHELP@gov.bc.ca.

Published and Available Online at Environmental Reporting BC (May 2018): <http://www.env.gov.bc.ca/soe/indicators/land/tree-seed-use.html>

Email correspondence to: envreportbc@gov.bc.ca

Methods

The [detailed methods](#) are available here.

Glossary

Climate based seed transfer is an important climate change adaptation strategy to promote healthy, resilient and productive forests and ecosystems through the matching of seedlings/seedlots to future (projected) planting site climates. In BC, the movement of seed/seedlings to sites that represent the predicted climate appropriate for the seed is small, representing only a quarter of a rotation into the future (i.e., 20 years in the Interior and 15 years on the Coast). This 'quarter rotation' adjustment will be updated as we move forward in time.

Genetic diversity is the genetic variation within individual organisms, within populations and among populations of a species. A fundamental component of biological diversity (genetic, species and ecosystem), genetic diversity plays an important role in the survival, adaptability and productivity of species and populations.

Natural stand non-superior provenance seed is wild seed collected from a natural stand seed source having no "known" level of genetic improvement.

Natural stand superior provenance seed is wild seed collected from a natural stand seed source identified as a superior provenance with a "known" level of genetic improvement for a specific trait (e.g. growth) over that of local wild stand populations.

Orchard seed is collected from parent trees growing in a managed seed orchard that is selected and tested as part of a tree breeding program.

Select seed is collected from either orchards or natural stand superior provenances. Select seed exhibits a higher level of improvement in one or more desired genetic traits (such as growth, form, wood density, and resistance to insects and disease) than wild seed collected from an average natural stand.

Tree Improvement Program, in BC is set up to provide strategic and long term planning, administrative oversight and management of forest tree seed orchards and tree breeding for the purposes of producing seed for reforestation that is genetically suitable (adapted to its planting site) and having a level of improvement (i.e. a known genetic value over that of “wild” seed based on science-based forest genetic theory and research).