



ALBERTA FOREST GENETIC RESOURCES COUNCIL

*Forest genetic resources:
Conserving diversity, enhancing productivity*

Genetic Resources & Reforestation

Reforestation in Alberta



Each year about 83,000 hectares of forests growing on public land are harvested. It is the law that all harvested areas are promptly reforested with suitable tree species and source material (i.e. seed or cuttings). Reforestation can be by site treatment that facilitates natural regeneration or by planting trees. Natural regeneration is the predominant reforestation method for deciduous tree species (e.g. aspen and poplars). Another reforestation method involves preparing the site so it will promote the success of natural seeding from adjacent standing trees. Planting is the predominant reforestation method for coniferous trees (e.g. white spruce, lodgepole pine, black spruce, jack pine). Each year about 77 million trees are planted on public land by the forest industry.

The Council

The Alberta Forest Genetic Resources Council advises the Alberta government, provides input on standards and policies, and helps set directions for research on any matter to do with the conservation, diversity and productivity of tree genetic resources.

Members of the Council represent the research, policy and industrial sectors. This fact sheet provides an overview of the regulatory foundations for genetic resource management in reforestation.

Who is Involved

The Alberta government is responsible for the public forest. It sets out the rules, policies and expectations guiding reforestation on public land. The government is represented on the Council, along with federal, academic and industrial participants.



GMOs and non-native tree species

GMOs (genetically modified organisms) in this context are trees into which foreign genes have been inserted using laboratory techniques. GMO trees are not presently allowed for reforestation on public Crown lands in Alberta.

The use of non-native tree species or their hybrids in reforestation on public lands requires careful risk assessment and a research testing program. Currently, no non-native tree species are approved for operational reforestation in Alberta.



Tree Seed, Vegetative Cuttings and Reforestation

Tree material used for reforestation in Alberta is regulated by the Standards for Tree Improvement in Alberta (<http://www3.gov.ab.ca/srd/forests/fmd/manuals/index.html>). The standards are enabled through the Timber Management Regulations, which are part of the Province of Alberta *Forests Act*. The standards recognize the importance of the type and quality of tree seed and other reforestation material in ensuring the ecological adaptability, genetic diversity and health of wild and managed forests. They also recognize the value of genetic selection and tree improvement in increasing the productivity of the forest, where appropriate, for economic benefits.

The standards recognize two reforestation material types: Stream 1 and Stream 2. Stream 1 material is collected from wild or artificially regenerated stands of native species. Stream 2 material is produced through genetic selection and breeding, usually in seed orchards or by mass vegetative propagation. All seed or cuttings to be used for reforestation must be registered with Alberta Sustainable Resource Development and documented for geographic origin, pedigree and diversity.

Following are some of the requirements in place to ensure seed and cutting quality are consistent with the objectives of sustainable forest management and conservation of genetic resources.

Stream 1 Seed or cuttings

- Material must be collected from the seed zone in which it will be used for reforestation. A seed zone is a geographic area with relatively uniform ecology and genetic population structure. Alberta is divided into 90 seed zones (digital map available from Strategic Corporate Services, Data Distribution Unit, srd.data@gov.ab.ca);
- All material collected (seeds or cuttings) must be tracked for its identity and genetic integrity from collection through processing, registration, storage, greenhouse or field growing and out-planting;
- Seed must be processed, tested and stored at approved facilities;
- Forest companies must maintain adequate inventory of coniferous seed for each seed zone and species to meet their reforestation obligation.

Stream 2 Seed or cuttings

- Seed or cuttings must be produced following an approved *Controlled Parentage Program* plan which specifies standards for parent tree selection, genetic testing, breeding, improved material production and the setting aside and management of wild forest gene conservation areas;
- Stock produced must meet genetic diversity requirements and be deployed within the species specific regional adaptation zone or breeding region for which it is approved. For example, the white spruce program for Alberta is divided into 9 breeding regions, each requiring an approved Controlled Parentage Program plan;
- Seeds or cuttings must meet requirements for collection, processing, registration, storage, greenhouse or field growing and out-planting as stated in the *Stream 1* section.



For more information

You can learn more about these topics by checking the website, www.abtreegene.com. The website also offers printable fact sheets on the Alberta Forest Genetic Resources Council, Deciduous Tree Improvement and Coniferous Tree Improvement in Alberta.

If you have any further questions, please contact
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