ALBERTA INNOVATES

AGRICULTURE AND ENVIRONMENT

ENVIRONMENTAL INNOVATION

LAND MANAGEMENT SOLUTIONS

Best Future Forests – Advanced Forest Genomics and Integrative Resource Management System (BFF-AFIRMS)

High-throughput genotyping and the predictive analytics such as 'genomic-selection' and optimization, have revolutionized genetic improvement programs globally. However, these innovations have yet to be incorporated into Alberta's tree improvement (TI) programs. To maintain Alberta's competitive edge and the leadership role in the forest industry, and to ensure responsible stewardship of forest genetic resource on public land, BFF-AFIRMS aims to transform TI operations and resource management by systematically integrating these innovations into existing programs. This cross-sector collaborative project will address climate challenges, support the growing demand for sustainable forest ecosystem and products, and ensure a resilient future for Alberta's forests and forestry industry.

BFF-AFIRMS

FUNDING DETAILS

RECIPIENT:

University of Alberta

Barb Thomas

PARTNERS:

Alberta Innovates,
ANC,
Canfor,
Government of Alberta,
Northland Forest Products,
Tolko,
University of Alberta,
West Fraser, and
Weyerhaeuser.

TOTAL BUDGET:

$4,647,363

AI FUNDING:

$759,420

PROJECT DATES:

FEB 2024 –
APR 2027

PROJECT TRL:

Start: 6
Start: 8

APPLICATION

The project will develop and implement tools necessary for digitalizing Alberta's TI sectors, including development of advanced genotyping platforms and a sophisticated information management and analysis system. Together, these new tools will enable adaptive genomics-backed TI decision-making across the province, enhancing the efficiency of developing high-yield, climate-adapted seedlings/trees. Our project directly contributes to Alberta Innovates 2030 biodiversity target by promoting resilient forest ecosystems and preserving key habitat for biodiversity across Alberta's landscape.

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PROJECT GOALS

The overall objective of the project is to develop key genetic resources and a data and information management system that will support improvement of key commercial species (lodgepole pine and white spruce) and build resilience to climate change in our future forests.

BENEFITS TO ALBERTA

Alberta will benefit through improved seedling genetics which ensures future populations of harvestable trees for Alberta's forestry industry. Having resilient forests ensures valuable ecosystem services are maintained and supports biodiversity conservation. Forests accommodate multiple land uses that are important to Albertans (e.g., recreation, cultural practices), provide valuable ecosystem services, and supports the forestry industry which is a key employer in approximately 70 communities. The project directly supports GoA policies related to the Forestry Act and the Alberta Ministry of Forest and Park's Forest Health and Adaptation Program. The project supports overall government direction on biodiversity conservation, which is promoted through a number of policies, regulations and legislation, including the Alberta Wildlife Act and the Alberta Land Stewardship Act.

CURRENT STATUS

OCT 2025 - IN PROGRESS

The BFF-AFIRMS team has completed purchasing and installation of the data server hardware and initiated software development, and completed tissue sampling of 5,750 lodgepole pine and white spruce trees for DNA extraction with analysis underway.

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