

# 2003 Annual Report for University Sector



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# Poplar Research in Canadian Universities

Damase Khasa

Poplar Council Business Meeting ,  
Rouyn-Noranda, Québec, September 16, 2003



**Poplar Council of Canada**



# Overview

- Status

*Populus* trees like cottonwood, hybrid poplar and aspen have emerged as research model organisms in Canadian universities because of rapid growth rate, small genome size (about 550 million base pairs in length) and widespread use in plantation forestry and other areas of interest to the forest industry

- International hot issues and new developments

*Populus* was chosen as the first tree genome to sequence. The sequencing is complete at about 7X coverage

# Overview (Continued)

Funding for the genome sequencing project is from the U.S. Department of Energy (DOE): \$25M.

The raw data is being stored at DOE's Joint Genome Institute (JGI) and can be accessed at - <http://genome.jgi-psf.org/poplar0/poplar0.home.html>

None of the sequence data is annotated yet. The funding required for the annotation work is around \$2M.

# Overview (Continued)

- Canadian hot issues and new developments

Two important projects on poplar funded by Genome Canada:

Project Arborea at Laval University: John Mackay et al.

Project Treenomix at UBC: Brian Ellis, Kermit Ritland et al

# Technical/Scientific Information

- What's new, trends, Trials and Research results

1) **Stewart Rood** (Professor and Board of Governor's Research Chair University of Lethbridge):

Investigations into the diversity, physiological adaptation, and conservation of native cottonwoods (riparian poplars) in most western states and provinces of North America.

Collaboration with the Oregon State U.'s group with transgenic poplars to study and modify growth form through single gene modifications related to phytohormone biosynthesis and response

# Technical/Scientific Information (Continued)

2) **K. Van Rees** (Professor, Chair of Agroforestry/Afforestation by the College of Agriculture Univ of Saskatchewan, July 2003).

5-year NSERC strategic grant investigating establishment of hybrid poplar plantations (stock trials, fertilization) on farm land in Saskatchewan as well as carbon sequestration and long term productivity modeling in collaboration with Mistik Management, PFRA Shelterbelt Centre, PRT Nurseries and UBC. The project is in its second year of five. Also working with Andy Gordon (U. of Guelph), developing BIOCAP and NSERC proposal in Afforestation/Agroforestry.

# Technical/Scientific Information (Continued)

- What's new, trends, Trials and Research results

**S. Dayanandan** (Professor, Concordia University):

Masters thesis completed on poplar phylogeny:

Hamzeh, M. (2003) Molecular phylogeny of the tree genus *Populus* (Salicaceae) based on chloroplast and nuclear DNA sequence data. MSc thesis, Concordia University.

# Technical/Scientific Information (Continued)

- What's new, trends, Trials and Research results

## **Laval group**

Genome Québec and Genome Canada (John Mackay et al.)

Evaluation by the SAB committee (Sept 10, 2003)

Risk assessment of exotic and hybrid poplar plantations in eastern Canada (Nathalie Isabel, Damase Khasa, Jean Bousquet, Pierre Périnet): Species-specific marker development almost completed.

# Sector Organization

- Who is working on what

See the 2002 Provincial and sector reports that can be found on the PCC web site at

<http://www.poplar.ca/reports.htm> .

# Events

- Workshops, Seminars and Meetings (Both past and planned)

First Canadian Plant Genome Workshop held in Saskatoon (23-26 August 2003).

Tree Biotechnology 2003, June 7-12, 2003, Umeå, Sweden

# Reports and Publications

- Include informal and PR materials when appropriate:

Can be obtained directly from individual scientists at the PCC web site <http://www.poplar.ca/reports.htm> .

# Key People

- List of Contacts (in addition to the report presenter)

Dr. Brian Ellis (UBC) for the Genome BC-Canada project.

Dr. John Mackay (U.Laval) for Genome Quebec-Canada project

Dr. Vic Lieffers (UofA, Centre for Enhanced Forest Management)

Dr. Yves Bergeron (Industry Chair in SFM, UQAT)

Brigitte Bigué (U.laval) and Christian Messier (UQAM): Ligniculture-Québec

Dr. Shawn Mansfield (UBC) for the wood quality research and also see the PCC web site at <http://www.poplar.ca/reports.htm> .