

# 2004 Annual Report for University Sector



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# Poplar Research in Canadian Universities

Damase Khasa

Poplar Council Business Meeting  
Vancouver, BC, August 12, 2004



**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>

# 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

Université du Québec en Abitibi-Témiscamingue received \$3million from CFI & partners in infrastructures for intensive silviculture & tree improvement research.

UQAT also made a submission to Coulombe Commission on state of Quebec forests underlining need for more fast-growing hybrid poplar plantations to compensate for predicted wood shortages. (Annie Desrochers)

# Technical/Scientific Information

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

## 1) **Simon Landhäusser** (University of Alberta):

Centre for Enhanced Forest Management current research on suckering in aspen related to seasonal root/shoot hormone balances, carbohydrate status & nutrition. Also relationship between leaf area development and clone productivity, effects of competition and logging residue on suckering, and importance of root system for aspen seedling quality for out-planting.

# Technical/Scientific Information (Continued)

- 2) Ken Van Rees** (Professor, Chair of Agroforestry/Afforestation. Coll. of Agri., Univ. of Sask.).  
Canadian Agroforestry Afforestation Research Network.  
Proposed national network with poplar as major species of interest, involving >50 researchers from universities (UBC, Alberta, Sask., Guelph & Moncton), CFS, AAFC & forest industry. NSERC rejected the proposal, but discussions are ongoing with BIOCAP.
- Presentations at 1st World Congress of Agroforestry, June 27 - July 2, 2004, Orlando, Florida, 94th American Society of Agronomy, Nov 2-7, 2003, Denver and XII World Forestry Congress, Sep 21-28, 2003, Quebec City.

# Technical/Scientific Information (Continued)

### **3) Om Rajora** (Professor, Dalhousie University):

Molecular and evolutionary genetics, phylogenetics and genomics of poplars. Specifically microsatellite marker development; fingerprinting of clones, cultivars, varieties, species and hybrids; and genetic, phylogenetic and evolutionary relationships among species and hybrids.

# Technical/Scientific Information (Continued)

## **4) Laval group**

New project: Development and use of phenotypic and molecular markers for disease resistance in hybrid poplars (Team Leader - Louis Bernier + Richard Hamelin (CFS), Pierre Périnet and Josée Mottet (MRNFPQ), Daya S. Dayanandan (Concordia U.) & Damase Khasa (U. Laval))

# Sector Organization

- Who is working on what

See the 2003 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)

2nd Annual Forest Genomics Workshop, UBC, Vancouver, August 7, 2004

2nd Canadian Plant Genomics Workshop, Quebec City, August 29 - Sept 1, 2004

12th New Phytologist Symposium: Functional Genomics of environmental adaptation in *Populus*, Gatlinburg, Tennessee, Oct 10-13, 2004

# 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)

Annie Desrochers, Francine Tremblay, UQAT

Simon Landhäusser, U of Alberta

Ken van Rees, U Saskatchewan

Om Rajora, Dalhousie U

Louis Bernier, U Laval