



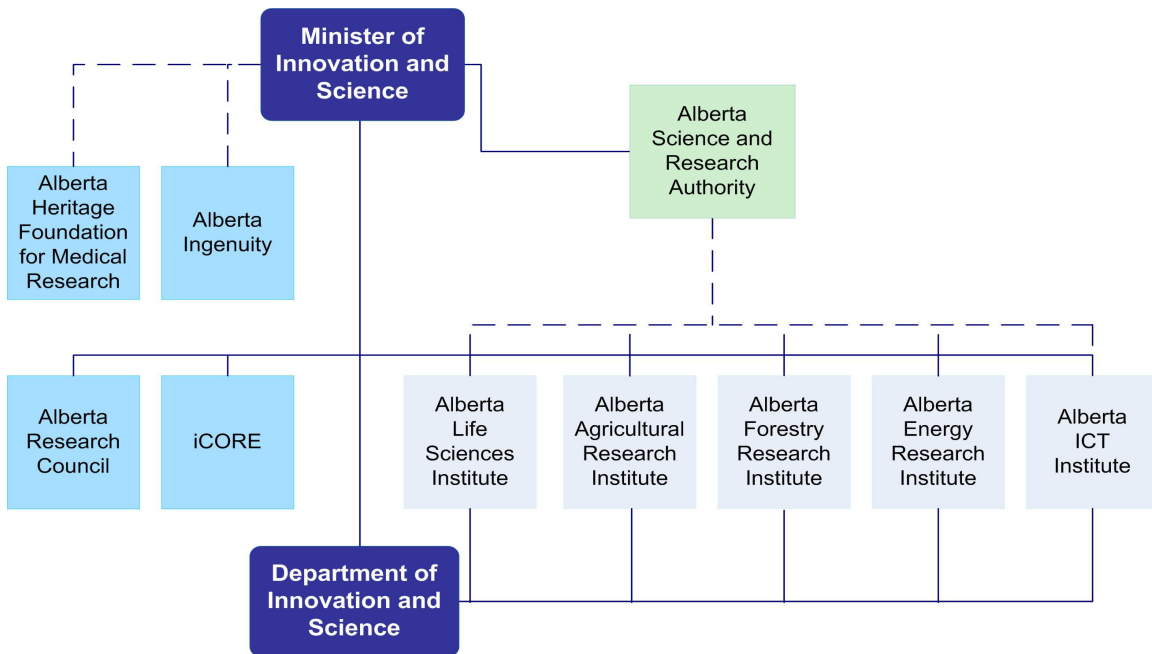
Alberta Forestry Research Institute Annual Report 2005-2006 A Year in Review

OVERVIEW

The Alberta Forestry Research Institute (AFRI) was formed in 2002. It is an unincorporated board comprised of representatives from industry, academia and government, established under the *Alberta Science and Research Authority Act*. AFRI's mission is to enhance the contribution of innovation and research to the economic, environmental and community sustainability of Alberta, and to promote the global competitiveness of the province's forest sector as a key contributor to Alberta's growing bioeconomy.

As Canada's fourth largest manufacturer of forest products, Alberta's forest sector contributes over \$8 billion to the provincial economy, ranking third after the energy and agricultural sectors. Forestry is the primary industry in over 45 Alberta communities and of those, 12 communities are deemed forestry dependent. To maintain its status as an integral contributor to Alberta's prosperity, the forest sector must innovate to remain globally competitive while ensuring the sustainability of our resources and communities. Investments in research and development are prerequisites for this innovation.

Prioritizing, coordinating and promoting innovation and research, and encouraging their application in our forest sector are the key responsibilities of AFRI.



MESSAGE FROM THE AFRI BOARD

This year, the Alberta Forestry Research Institute presented its business plan for 2006-2011 entitled “Bio-Forest Alberta: Alberta’s Forest Innovation System”, to the Alberta Science and Research Authority. This five-year plan envisions a forest sector that is an innovation leader in the province’s emerging bioeconomy.

In this vision of the future, existing commodity producers lead the world in process efficiency, cost competitiveness and quality control. Resources are fully renewable and extracted from landscapes that go beyond sustainability to make even greater contributions to environmental goods and services: from clean water to productive habitat and recreation opportunities. It is also a future in which the marriage of new and emerging technologies in informatics, genomics, nanotechnology and conversion of fibre for energy, synthetics and biocomposites open up entirely new economics for Alberta communities large and small.

Three strategic directions for innovation and research investment are identified in the plan: Sustainable Forest Management, Product Efficiency Enhancement and New Products. To enable and accelerate Alberta’s bioeconomy objectives AFRI will:

- **Lead and Seed** strategic forest innovation opportunities to achieve the future,
- **Catalyze and Align** the forest innovation system to support the competitiveness of the forest sector and the provinces long-term bioeconomy objectives, and
- **Monitor performance** of the forest innovation system.

The time for innovation and research to open the door to this opportunity is now. Alberta has access to leading edge capabilities in informatics, genomics, nanotechnology, nutraceuticals and climate adaptability of forest species, all open to strategic direction that will advance the forest biotechnology agenda. AFRI’s vision supports provincial strategies for water, Integrated Landscape Management, value-added economic development and rural sustainability. Sister institutes in Agriculture and Energy research share AFRI’s interests in bioenergy, fibre properties and synthetics that will align with Alberta’s downstream petrochemical output.

Investing in AFRI’s plan will contribute to three key strategies of the Alberta Government: (1) *Securing Tomorrow’s Prosperity* (the Value-Added Strategy), (2) *Growing Our Future* (the Life Sciences Strategy), and (3) *Water for Life* (Alberta’s Water Strategy). Without strategic investments, Alberta’s forest resources (our principle renewable resource) and the infrastructure that adds value to them are at risk of stagnating or even declining.

The potential of this knowledge and resource base will be realized through the driving vision of a new virtual entity called “Bio-forest Alberta”. Bio-forest Alberta will represent all of the values Albertans expect from their forest: sustainable water resources and landscapes, commodity products, innovative products, oil, gas and mineral resources, recreation, and cultural goods and services.

AFRI has completed its initial planning and implementation phase and with industry and government support, is well positioned to aggressively pursue and live new research and development investment opportunities that will deliver “tomorrows promise” for Alberta’s forest sector.

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Frank Oberle, MLA
Co-Chair
June 2006

Original signed by

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William (Bill) Hunter
Co-Chair
June 2006

KEY ACTIVITIES:

During the 2005-2006 fiscal year, the following key activities have supported AFRI's strategic directions identified in its Business Plan, as well as the strategic priorities within the Alberta Innovation and Science Business Plan of 2005-2008, Goal 5, "Accelerate innovation in the life sciences sector".

As the results of a Board retreat, AFRI has updated its Business Plan around its three strategic directions, namely: (1) Sustainable Forest Management, (2) Enhancing and Diversifying the Value Chain and, (3) New Products/Processes. There is increased emphasis on genomics, molecular biotechnology, nanotechnology, bioproducts, bioprocess (biorefining), bioenergy and research issues related to the possible devastation by the mountain pine beetle. In addition, AFRI has continued its monitoring role on the Manning Forestry Research Fund to ensure that projects supported are in line with AFRI's strategic directions.

Some of the highlights of the AFRI program for this fiscal year are provided below:

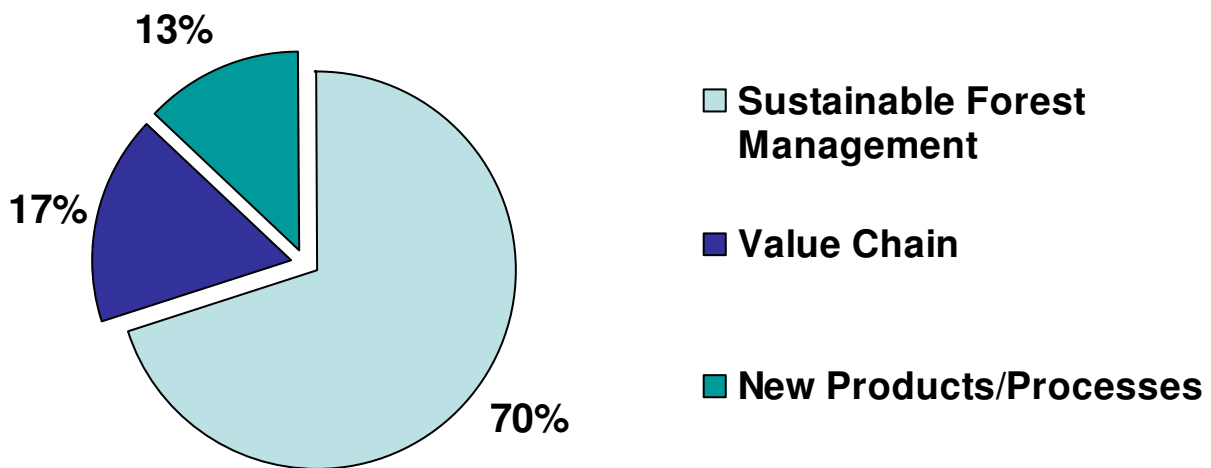
- The Sustainable Forest Management Network's (SFMN) program is providing the science base to applied forest management throughout Canada. The research is also recognized internationally by scientists and practitioners around the world. The program also contributes to the development of highly qualified people in bioscience based forest management.
- AFRI was involved as a partner along with the forest products industry and the University of Alberta in the establishment of the Hardwood Genetic Chair at the University of Alberta to carry out priority research related to poplars, with specific reference to trembling aspen.
- The development and implementation of an intelligent information decision system for manufacture of composite panels will result in an increase of quality and production (through input, efficiency and cost reduction) and help to keep Alberta's composite panel industry globally competitive.
- The development and implementation of a new adhesive system based on the successful combination of phenolic compounds and nanoclays will lead to superior quality and resin cost reduction in the manufacturing of composites.
- The development and implementation of a computerized material handling systems for the manufacture of high value secondary wood products will improve forest resources export opportunities.
- The identification of commercially viable biochemical, bioproducts and processes from forestry and agricultural biomass will lead to the further development of the province's bioindustry and bioeconomy. The Alberta bioproducts/process program based on forestry and agricultural biomass is considered as one of the leaders in this field. Alberta scientists have contributed to the national roadmap and white paper on biorefinery for forestry and agricultural biomass.

- A demonstration program funded through the Western Economic Partnership Agreement (WEPA), Bioproducts Alberta and the biomass supplying industry was initiated to generate electricity from bioenergy at low capacity levels.
- AFRI was involved in the arrangement of a number of workshops on the utilization of forestry and agricultural biomass for biochemicals and biofuels through biorefining.

During the second half of the fiscal year through a consultation planning process with stakeholders, AFRI developed a strategic plan outline for 2006-2009 as part of the implementation of the life sciences strategy.

PROGRAM EXPENDITURES:

In 2005-2006, actual expenditures for AFRI’s programs were \$3,325,269.39.



CONCLUSION:

Several new networks will emerge to champion this innovation and research:

- Integrated Landscape Management,
- Forest Health Innovation,
- Product Efficiency Consortium, and
- Fibre Innovation.

All four networks will work together to enable policy, provide technology and knowledge transfer, stimulate rural development and value-added opportunities and encourage new skill development in Alberta.

AFRI will drive the future through its role of advising government, and fostering and championing innovation and research as a key contributor to Alberta's growing bioeconomy.

AFRI looks forward to implementing its innovative bioproducts and sustainable production strategies to expand Albertans' interest in the forest sector, and also to working with the new Life Sciences and ICT Institutes as they become operational.