

# The Agricultural Biorefinery Innovation Network (ABIN): A Canadian Network for Research in Green Energy, Fuels and Chemicals

---

*Franco Berruti*  
*Network Leader*

Institute for Chemicals and Fuels  
from Alternative Resources  
The University of Western Ontario



*London, Ontario, CANADA*



# ABIN

\$ 8.7 M

AGRICULTURAL BIOREFINERY INNOVATION  
NETWORK (ABIN)

[2008-2011]:

70 researchers

from 16 Canadian Institutions (Academia,  
Government and Industry)



## Key Features of Vision

**Many possible biomass feedstocks**

**Non-food biomass**

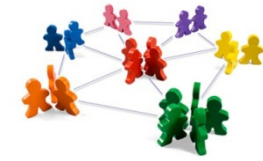
**Residues or selected marginal or energy crops**

**Biorefinery approach**

**Strong and effective networking**

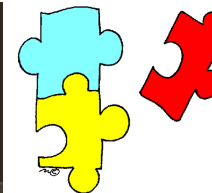


# Participating Institutions



University of Western Ontario	University of Toronto
École Polytechnique de Montreal	University of Northern British Columbia
University of Guelph	University of Alberta
University of Manitoba	Agri-Therm Limited
Ryerson University	Perth Community Futures
University of Saskatchewan	Saskatchewan Research Council
Université de Sherbrooke	Stormfisher Ltd.
University of British Columbia	National Research Council Agriculture and Agri-Food Canada

# Research Themes

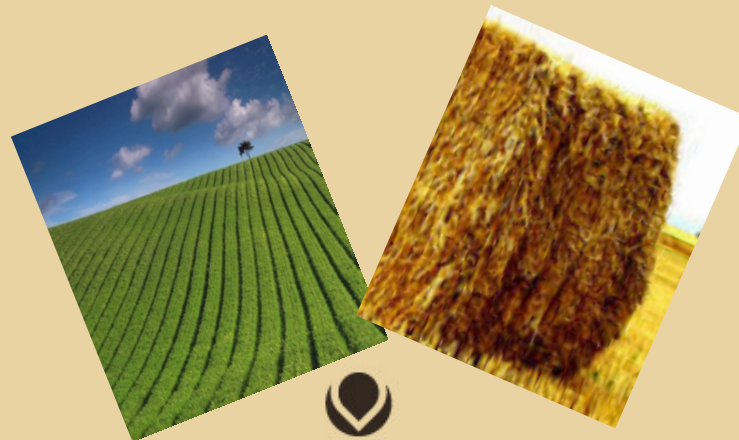


1. Feedstock Enhancements and Biorefinery Interface
2. Green Chemicals
3. Green Fuels
4. Green Energy
5. Life-Cycle Assessment and Technology Integration
6. Knowledge Transfer, Technology Transfer, Commercialization and Policy Development



# 1) Feedstock Enhancement and Biorefinery Interface

- L. Tabil (UofS), S. Sokhansanj (UBC), S. Panigrahi (UofS), G. Turcotte (Ryerson), P. Krishna (Western), R. Knox (AAFC), N. Huner (Western)
- Research to reduce handling, storage and processing costs, and to ensure a steady supply of agricultural-based lignocellulosic feedstocks required for biorefineries



## 2) Green Chemicals

C. Briens (Western), I. Scott (AAFC), F. Berruti (Western), X. Bi (UBC), J. Chaouki (École Poly), P. Charpentier (Western), E. Chornet (Sherbrooke), A. Dalai (UofS), Y. Dahman (Ryerson), R. Dutton (Guelph), R. Golden (Agri-Therm), B. McGarvey (AAFC), S. Liss (Gueph)

- Research on the efficient use of crops or plant residual materials to generate valuable chemicals and pharmaceuticals for agricultural, industrial or medicinal uses (i.e., green chemicals)



## 3) Green Fuels

A. Dalai (UofS), J. Chaouki (École Poly), R. Ranganathan (SRC), D. Anweiler (SRC), N. Ellis (UBC), K. Smith (UBC), S. Duff (UBC), P. Watkinson (UBC), N. Abatzoglou (Sherbrooke), E. Chornet (Sherbrooke), C. Briens (Western), F. Berruti (Western), H. DeLasa (Western), H. Wang (NRC), G. Wolfaardt (Ryerson), Y. Dahman (Ryerson), A. Lohi (Ryerson), G. Hill (UofS), J. Kozinski (UofS), T. ugsley (UofS), C. Niu (UofS), B. Roesler (PhibrioChem), D. Bayrock (PhibrioChem), S. Helle (UNBC), W. McCaffrey (UofA), M. Thomson (UofT)

Develop integrated and original approaches for the complete utilization of biomass feedstocks to produce green fuel products





## 4) Green Energy

M. Thomson (UofT), A. Dalai (UofS), J. Chaouki (École Poly), C. Briens (Western), F. Berruti (Western), H. Wang (NRC), G. Hill (UofS), E. Bibeau (Manitoba)

Integrates fuel cells, pyrolysis, combustion and biological technologies for heat and power production into sustainable agricultural cycles



## 5) Life Assessment and Technology Integration

L. Townley-Smith (AAFC), R. Samson (École Poly), L. Deschenes (École Poly), X. Bi (UBC), M. Wismer (SRC)

Life cycle approach:

- integrate the environmental variables
- optimize industrial processes
- minimize the risk of major problems after the introduction of one of these technologies and ensure that the new technology does not shift the problem elsewhere



## 6) Knowledge Transfer, Technology Transfer, Commercialization and Policy Development

T. Bansal (Western), D. Cunningham (Western), C. Guilon (StormFisher), B. van Berkel (StormFisher), R. Golden (Agri-Therm), J. Henhoeffler (PCFDC), D. Lee (AAFC), L. Townley-Smith (AAFC), M. Stumborg (AAFC), J. Adams (Western), D. Hewson (Western), J. Kabel (Western), R. Ranganathan (SRC)

- Investigate existing knowledge networks to identify the key success factors required to develop sustainable biorefinery clusters in Canada
- Examine the degree political (policy), economic and social factors will influence entrepreneurial firms' technology development decision-making and performance.

