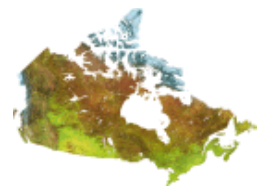


8th Biennial SRWC Operations Working Group Syracuse, NY, October 18, 2010

Expert Survey on Adoption Issues for Short-Rotation Afforestation and Agroforestry Systems

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Presentation outline

1. Background

- ✦ The systems examined
- ✦ A follow-up of a focus group study

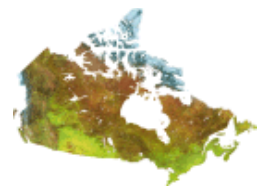
2. The Expert Survey

- ✦ Objectives
- ✦ Approach
- ✦ Preliminary results & conclusions

3. Next Steps

4. Acknowledgments

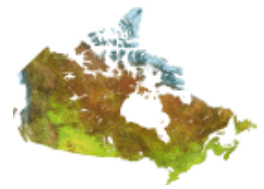




1. Background

- ✦ **The four short-rotation afforestation/agroforestry systems examined:**
 - 1. Short-rotation woody crops of willow or poplar** (very high density, 3-4-year harvest cycles, 5-7 cycles per plantation)
 - 2. Poplar farming** (moderate density, 15-25-year harvest cycles)
 - 3. Willow-based riparian buffer systems** (3-4-year harvest cycles)
 - 4. Willow- or poplar-based alley cropping systems**





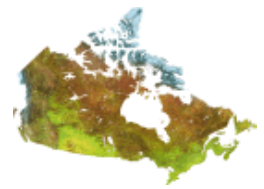
✧ A follow-up of a focus group study:

To identify adoption issues perceived by landowners with an early-adopter profile

Based on two working hypotheses:

1. Landowners can identify adoption issues relevant for the development and application of the four systems
2. Issues identified for a system may also be relevant for other systems





✦ A follow-up of a focus group study (Cont.)

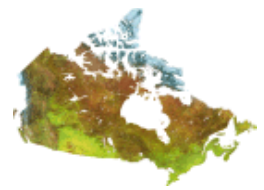
80 landowners met through focus groups (in Quebec and the three Canadian Prairie provinces)

Benefits, drawbacks, anticipated adoption, changes in the level of interest were discussed

44 perceived development and application issues presented in a 2008 report:

- Technical, financial, legal, environmental & others
- 80% of the issues common to more than one system
- Need to be specified and validated by experts



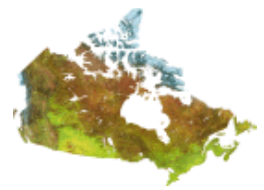


2. The Expert Survey

Survey of experts on the perceived issues identified in the focus group study, in order to:

1. Clarify the issues if necessary
2. For each of the four systems, evaluate the relevance of addressing the issues in the short term (0-5 years) in Canada
3. Evaluate if the relevance of addressing the issues will change over the medium term (5-10 years)
4. Identify other relevant issues
5. Formulate recommendations for the benefit of various stakeholders

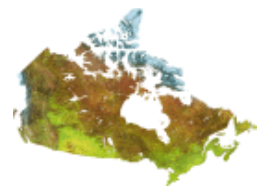




✧ **General approach for the survey:**

- 11 study partners: experts on key types of issues to specify the approach, identify respondents, and participate in result analysis and drafting of a journal article
- Respondents select issues to comment on from a list of 44 proposed issues (with details)
- Respondents select issues they believe they have sufficient expertise to comment on
- Respondents have the possibility to add other issues that seem relevant to address in the short term (0-5 years)

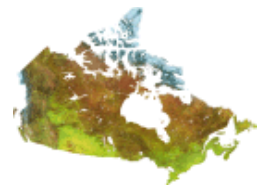




✧ **General approach for the survey (Cont.):**

- A standard questionnaire to comment on each of the selected issues (8 questions)
- Relevance of addressing an issue over the short term based on two main criteria:
 1. the importance of taking the issue into account for the development or the application of a system
 2. the availability of solutions for this issue
- Two-phase survey: Phase 1 already completed, and phase 2 being answered by experts identified by respondents in phase 1





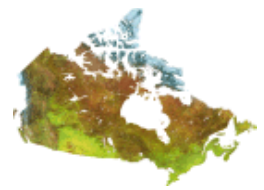
✦ Preliminary results

Based on data of phase 1 (about 3/4 of total respondents)

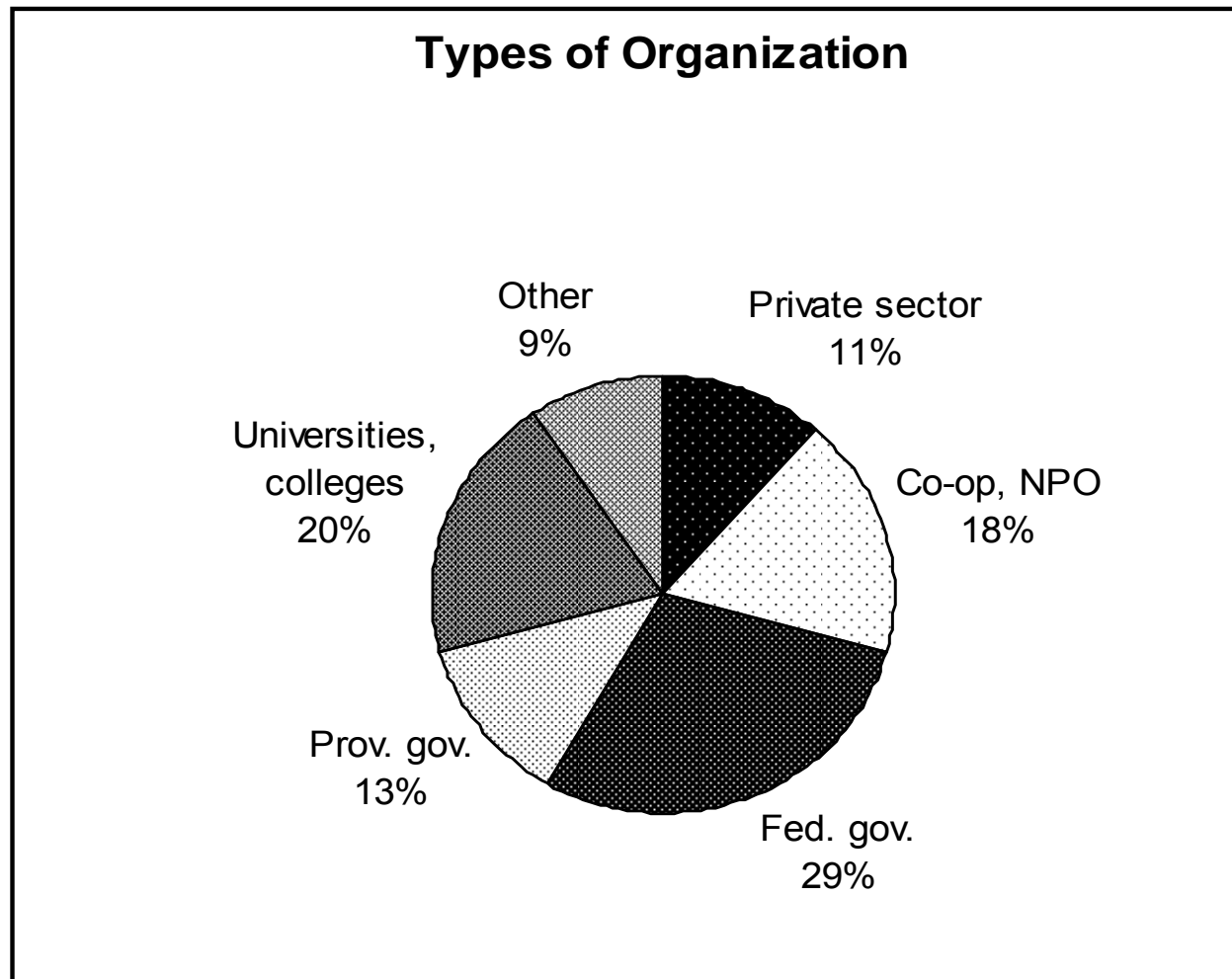
Main statistics:

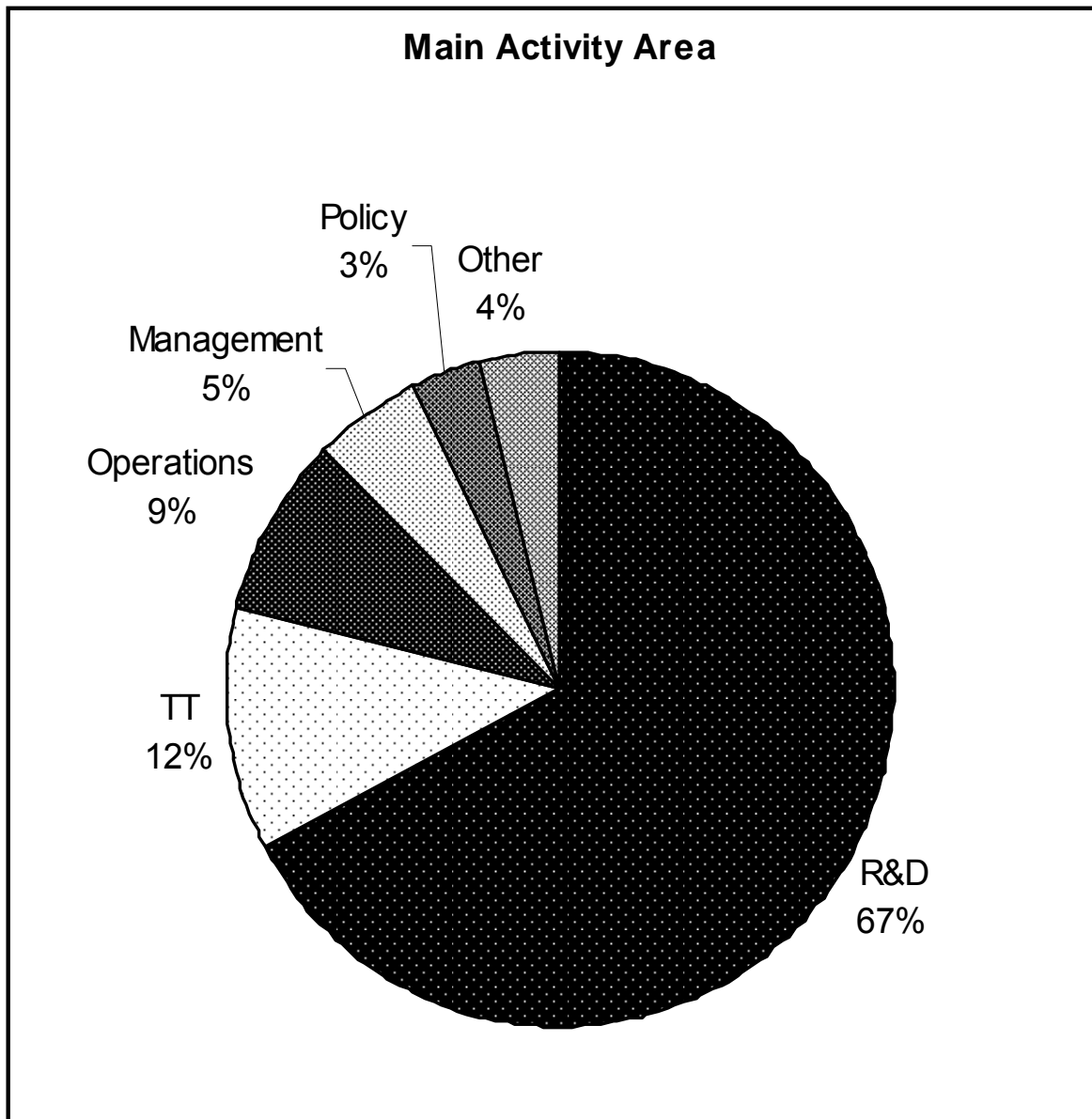
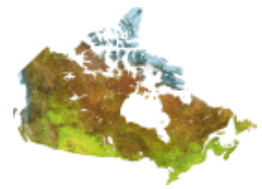
- 140 eligible experts
- 96 respondents
- 69% response rate
- Average of 4.8 issues commented on per respondent

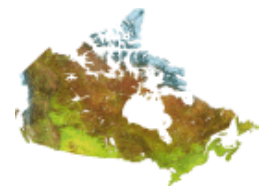




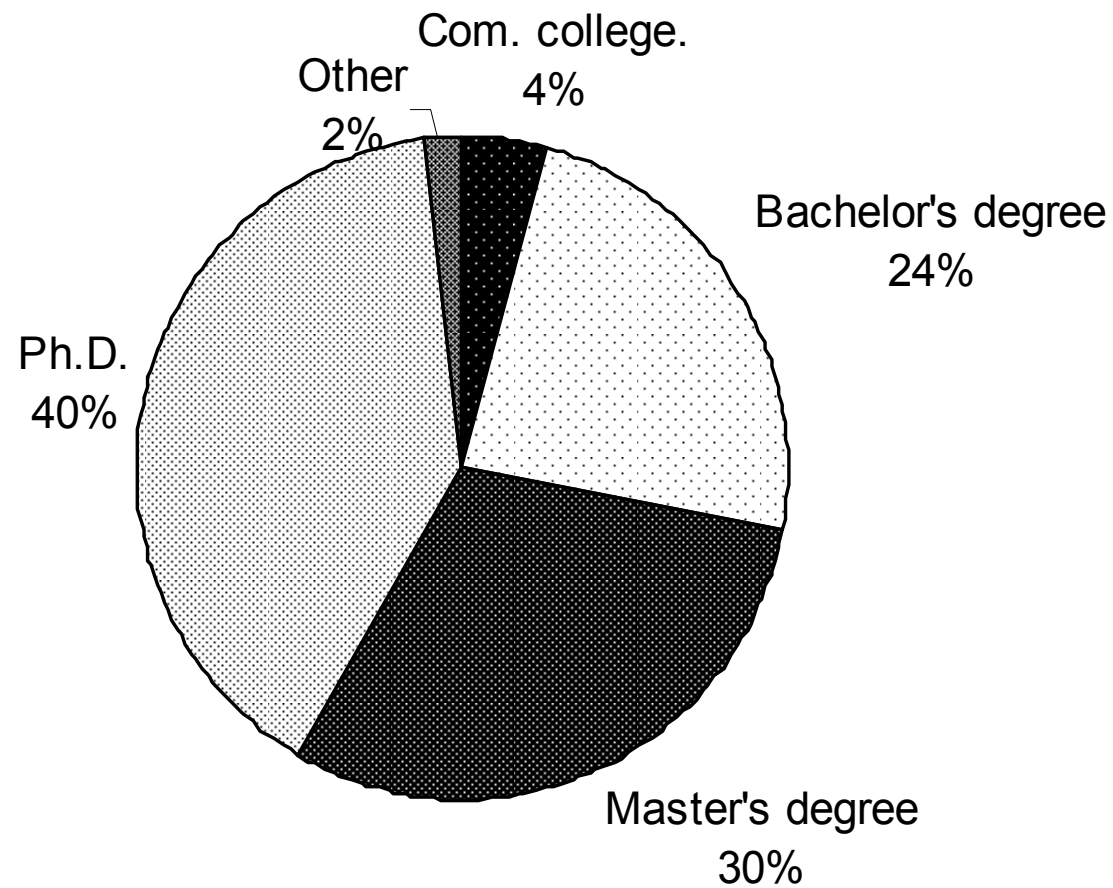
Who are the respondents?

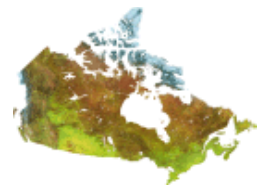






Higher Level of Schooling





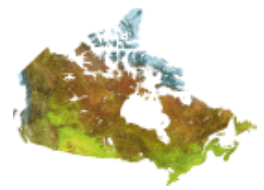
Results of two key questions

Q1. Are the description of the perceived issue and the additional details provided (clarifications) clear and precise enough?

Yes: 76%, No: 24%

If no, provide comments and suggestions to further clarify the issue.



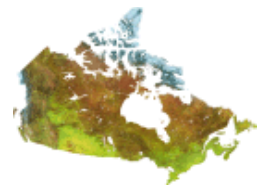


Mostly concern the details, for instance:

- “Gene dispersion” rather than “genetic pollution”
- Demonstration sites are not only relevant for landowners
- Soil compaction and rutting should also be considered to assess the risks to alter the protective capacity of riparian buffer strips following periodic harvesting

This information will be used to clarify the issues





Q7. Based on your previous answers, and for each of the four systems, how relevant is it to address this issue in the short term (0-5 years) in Canada or its regions?

(4) Very relevant

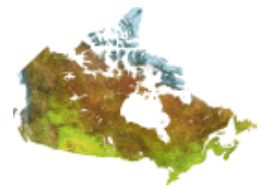
(3) Relevant

(2) Not very relevant

(1) Not relevant

Database codes: indicators of relevance for the issues



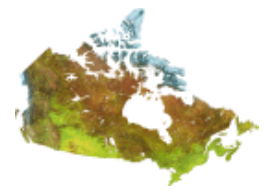


Relevance to address the 44 proposed issues in the short term (0-5 years)

Criterion: The number of issues with average rating ≥ 3.0 for at least one of the four systems

- 40 out of 44 proposed issues (91%)
- Of the 4 other issues: 3 not selected, 1 selected



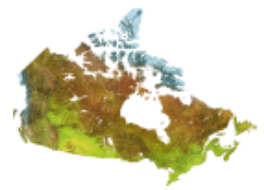


Relevance of the proposed issues to more than one system

Criterion: Number of systems with average rating ≥ 3.0

No. of systems	No. of issues	Percent
4	25	57%
3	4	9%
2	8	18%
1	3	7%
0	<u>4</u>	<u>9%</u>
	44	100%



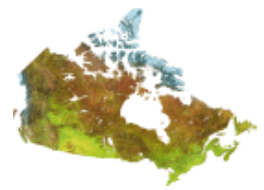


Most obvious relevant issues to address in the short term:

SRWC **Criteria:** Rating ≥ 3.5 and Selection frequency ≥ 10

1. Identify and document the characteristics of the available clones (Tech.)
2. Specify the yields and production costs in an operational context (Tech., Fin.)
3. Specify potential markets for the various products/uses (Fin.)
4. Assess and propose incentives for the systems (e.g. financial assistance) (Fin.)

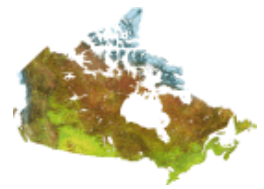




Most obvious relevant issues... SRWC (Cont.)

5. Develop models for assessing the feasibility of the systems according to various scenarios (Fin.)
6. Determine the carbon sequestration potential for various scenarios (Fin., Env.)
7. Specify the potential environmental uses of the systems, such as wastewater treatment, and bioremediation of contaminated soils (Fin., Env.)
8. Carry out life cycle analysis for the production and processing of the biomass produced, and assess the carbon balance of the biofuels produced from the biomass (Env.)

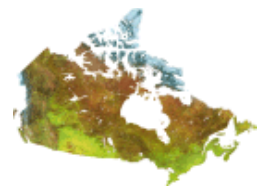




Most obvious relevant issues... SRWC (Cont.)

9. Specify the effect that the cropping systems have on wildlife habitats and biodiversity (Env.)
10. Set up demonstration sites (TT)
11. Produce extension information and set up TT efforts for the benefit of various stakeholders, including landowners (TT)
12. Identify and assess arrangements that could permit the cultivation of crops on abandoned farmland, given the current agricultural zoning constraints (Leg.)
13. Clarify the legal status of the crop (Leg.)





Most obvious relevant issues to address in the short term:

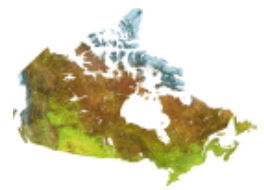
Poplar farming **Criteria:** Rating ≥ 3.5 and Selection frequency ≥ 10

The same 13 issues identified for SRWC!

An additional issue:

- Assess the environmental risks related to the introduction of exotic species (Env.)
 - Mainly refers to natural hybridization with native species
 - A system that produces sexually mature trees (flowering)





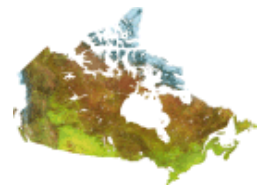
Additional issues proposed by respondents

29 issues of which:

- 23 appear to be included in the 44 issues, e.g. as sub-issues or approaches to address an issue
- 2 issues are unclear
- 4 appear to be new issues

Another indicator of relevance for the issues identified through the focus group study



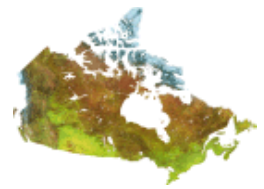


Example of new issue

1. Put forward an aggressive national genetic development program for willows and poplars
 - To increase G&Y and the number of clones adapted to different regions/conditions
 - To conserve the long-term nature of the investments
 - To create synergies between key stakeholders (academia, industry, agencies, landowners)

Proposed by three respondents



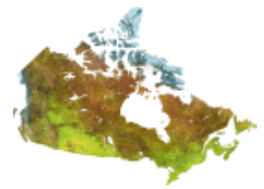


✧ Preliminary Conclusions

- The survey confirms our two initial hypotheses:

1. Landowners can identify adoption issues relevant for the development and application of the four systems
2. Issues identified for a system may also be relevant for other systems



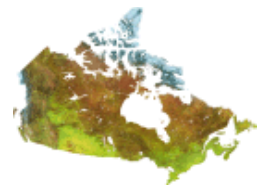


✧ Preliminary Conclusions (Cont.)

- The five study objectives will be met:

1. Clarify the issues if necessary
2. For each of the four systems, evaluate the relevance of addressing the issues in the short term (0-5 years) in Canada
3. Evaluate if the relevance of addressing the issues will change over the medium term (5-10 years)
4. Identify other relevant issues
5. Formulate recommendations for the benefit of various stakeholders



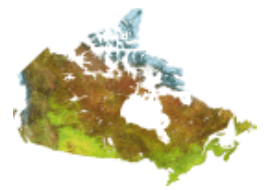


3. Next Steps

1. Complete implementation of survey (phase 2)
2. Analyze the results with study partners
3. Produce a journal article with study partners

To be completed next spring





4. Acknowledgments

Our study partners:

Marc-André Côté, Union des producteurs agricoles du Québec

Andy Gordon, University of Guelph

John Kort, Agriculture and Agri-Food Canada

Michel Labrecque, Institut de recherche en biologie végétale

Dan McKenney, Canadian Forest Service

Philippe Savoie, Agriculture and Agri-Food Canada

Bill Schroeder, Agriculture and Agri-Food Canada

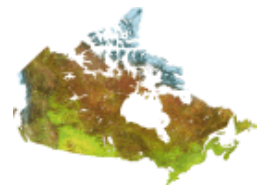
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Naresh Thevathasan, University of Guelph

Ken Van Rees, University of Saskatchewan

André Vézina, Institut de technologie agroalimentaire



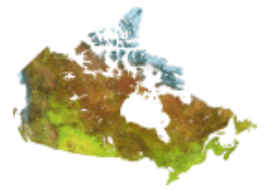


4. Acknowledgments (Cont.)

The experts who agreed to participate in the survey

The ecoENERGY Technology Initiative (ecoETI) of
Natural Resources Canada





Thank You!

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Web site of overall project:

<http://cfs.nrcan.gc.ca/subsite/ecoeti/overview>

