

Climate Change Adaptation-

A Producer Perspective on Policy and Programs

C-CIARN AGRICULTURE

<http://www.c-ciarn.uoguelph.ca>

Summary Report for C -CIARN Agriculture meeting, Holiday Inn Plaza la Chaudière,
Gatineau, Quebec, February 25, 2004

Canada

**UNIVERSITY
of GUELPH**

Foreword

C-CIARN Agriculture (Canadian Climate Impacts and Adaptation Research Network for Agriculture) operates out of the University of Guelph (Guelph, Ontario) and currently includes over 435 members interested in facilitating and promoting research into climate change risks and adaptation for the Canadian agri-food sector. We encourage those in industry, research, and policy to learn from each other and work together on effective climate risk management strategies for agriculture. Details about C-CIARN Agriculture, including information for joining the network are available through our website: <http://www.c-ciarn.uoguelph.ca/>

Annual meetings provide a forum for network members to meet each other and learn more about the challenges and opportunities from climate change facing those working in the agricultural industry, those developing government policy and programs, and those committed to research. Besides sponsoring and co-sponsoring numerous smaller events, C-CIARN Agriculture has now held three annual meetings. In 2002 the focus was on research accomplishments, while in 2003, industry responses to climate change challenges were highlighted. For 2004, the advisory committee (see Appendix A) chose policy for the meeting's focus, with the specific goal to identify:

what producers need and expect from federal and provincial governments as they develop policy and programs for climate change adaptation.

Producers and those who work on their behalf formed a panel of speakers who made presentations that addressed the following set of questions:

*What are the main climate and weather risks you (or producers you work with) currently manage?
How do you/they manage those risks?
What federal and provincial policy and programs are important for weather and climate risk management strategy? What needs improvement?
How should policy/programs be improved?
What are your/their short and long term needs and expectations regarding federal and provincial policy regarding climate change adaptation?*

This report documents the presentations and discussion from the 2004 meeting. We are very grateful for participation from several producers and their representatives who provided their insights during the meeting. On-going support from the Government of Canada and the Faculty of Environmental Sciences and Department of Geography, University of Guelph helped to make the meeting possible. Thanks are also due to Agriculture and Agri-Food Canada for co-sponsoring the meeting and to several provincial ministries supporting their representatives' attendance. We appreciate Tanuja Kulkarni's and Stefanie Neumann's assistance throughout various stages of the C-CIARN Agriculture 2004 meeting.

Ellen Wall Coordinator
Johanna Wandel, Research Associate
Barry Smit, Scientific Director

C-CIARN AGRICULTURE

University of Guelph
April 14, 2004

CLIMATE CHANGE ADAPTATION-A PRODUCER PERSPECTIVE

1. INTRODUCTION

Interest in managing risks associated with climate and weather conditions continues to build across Canada. This is in part due to the recent increase in the severity of impacts from climate and weather conditions. Compounding these climate/weather risks are additional stresses from food safety, trade, and environmental factors. All pose challenges to the economic viability of Canadian agriculture. Statistics Canada reports realized net farm income for 2003 at negative \$13 million, citing recent extended droughts as a major element contributing to lost revenue. Calculations for the 2001-02 droughts across Canada are now estimated at \$6.14 billion. Although regional impacts have varied, crop insurance agencies across Canada indicate they have experienced major impacts related to claims being made. In Ontario, for example, the trend is dramatic. From 1966-2000, payments for insured crops totaled approximately \$1 billion. From 2000-2004, payments are \$640 million¹. With predictions for continued risk and uncertainty in future climatic conditions, federal and provincial governments are considering how existing policy instruments can be more effective and relevant for the agri-food sector viability.

Agricultural policies and programs strongly influence Canadian agriculture. To be effective, government initiatives for enhancing the sector's adaptive capacity to meet climate and weather risks require substantial input from producers, not only into the policy and program development but also into the underlying research. However, it is often difficult to find opportunities for the policy community to obtain such information. On-going discussion among C-CIARN-Agriculture members has led to consensus on what is needed from governments at all levels:

- Integrate adaptation policies with existing risk management strategies
- Ensure policies are mutually supportive and not leading to conflicting purposes
- Acknowledge diversity in:
 - type of climate/weather risks
 - farming systems
 - regional conditions

Participants in our 2004 meeting elaborated and added to these items. This report contains summaries of the presentation; themes and issues emerging from the discussion; and a number of recommendations for climate risk management policy and program development.

2. DETAILS ON PARTICIPATION and MEETING PROCESS

Approximately 55 people registered and took part in the meeting. A list of participants and their affiliation is available in Appendix "B". As Table 1 indicates, the policy community was well represented making up roughly half the participants. Although most policy attendees were from the federal government, several provinces were also represented (Alberta, Manitoba, Ontario, Quebec, and Nova Scotia). Producers and others working in the agricultural businesses or organizations constituted 24 per cent of those attending, while those in research and/or other fields (eg. involved in both research and policy) were 15 and 13 per cent, respectively.

¹ Information from: Cudmore, P. 2004. "Agricorp's Ontario Weather Data Collection Grid. Presentation for Long-Range Climate and Impacts Forecasting Working Group Meeting V, Ramada Inn, Guelph, Ontario, March 15-17.

Table 1. Attendance at CLIMATE CHANGE ADAPTATION-A PRODUCER PERSPECTIVE

Stakeholder group	Percentage
Policy	48
Industry	24
Research	15
Other	13

A program for the meeting is available in Appendix "C".

The meeting began with Barry Smit (Scientific Director for C-CIARN Agriculture) setting the context for the focus on climate adaptation policy. He made several key points, including:

- Climate change adaptation is an economic issue for the agri-food sector, related to seizing opportunities and managing risk;
- Enhancing adaptation means improving producers' capabilities for managing risks from both the frequency and magnitude of extreme events as well as changes in long term averages for temperature and precipitation;
- Governments should assume a leadership role in climate change adaptation as is strongly recommended in recent Senate Report;
- Government commitments to climate change adaptation are found in:
 1. Climate Change plan
 - develop approaches to adaptation
 - assess vulnerabilities to climate change
 2. Support for adaptation research
 3. Support for C-CIARN initiative
 4. Development of Adaptation Framework (Fed-Prov)
 5. Agriculture Policy Framework (APF)
- Governments must ensure stakeholders are engaged in policy development process.

A panel of speakers made presentations that provide substantive support for, and elaboration of these opening observations. Brett and Barclay Meinert, who farm in southwestern Saskatchewan were the first to speak, followed by Dela Erith, who represents apple growers in Nova Scotia. Mary Lou Garr, a producer from southern Ontario presented on behalf of the Federation of agriculture. Gordon Fairchild informed us about perspectives on climate change adaptation from the of soil and water conservation community in Atlantic Canada. To conclude the panel, Chris Bryant presented insights from his (and his colleagues') research with producers. Canadian policy representatives from federal and provincial ministries benefited from hearing panelists describe the reality of managing climate and weather risks on agricultural operations and the role policy and programs play in that endeavour. Presentation summaries are in Section 3 of this document.

After panel members had spoken, Barry Grace (AAFC) moderated a session of comments and questions from those attending the meeting. Bob MacGregor (AAFC) then provided a summary of the messages policy makers could take away from both the speakers' presentations and the discussion that ensued (see Section 4). Policy recommendations for climate risk management in the Canadian agri-food sector have been summarized based on information from all dimensions of the meeting. These are in table form in Section 5.

3. Panel Members: how climate and weather risks are currently managed and how policy can help

Southwest Saskatchewan Dryland Farming--- Brett and Barclay Meinert, Meinert Enterprises, Shaunavon, Saskatchewan

The Meinerts produce cereals, pulses and forages in a continental climate on approximately 6,000 acres of land in southwestern Saskatchewan. Conditions there are semi-arid and challenging due to both annual and seasonal variability and unpredictable frosts. Typically, there are 110 frost-free days, an average of 15 inches of moisture and an abundance of sunlight in the region.

Beware of a system where no one can lose. Management 's impact needs to be accounted for-- It plays a large part in determining outcomes (win, lose, and draw).

Noting that farm decisions must include managing several factors at once, the Meinerts describe the challenges from economic risks related to interest rates, dollar value, and energy costs. Also challenging is the need to maintain a

consistent cash flow in a highly variable environment related to marketing and income. Uncertainty in these factors is exacerbated with the uncertainty in climate and weather conditions.

In recent years, climate and weather conditions present major concerns regarding moisture levels. The Meinerts employ several farm practices to lessen the negative effects from moisture deficits including:

- trapping snow with stubble from the crops-some crops leave more desirable stubble than others
- diversifying crops to include those with greater drought resistance; varying maturation lengths; different stubble heights, and include root types that enhance early moisture infiltration
- employing crop rotation to improve soil quality

The Meinerts also employ different strategies for managing farm finances in light of climate/economic risks including taking part in income stabilization programs; buying crop insurance; relying on help from family, and earning off farm income. Based on their experiences, the Meinerts make the following recommendations:

- first and foremost aim for stability-resist urge to change programs that are working
- ensure crop insurance is flexible, affordable, and offers wide coverage
- beware of systems where no one can lose (eg "disaster subsidies") –management should impact the farm business
- avoid creating the perception that agriculture is a sector always needing a hand-out





Apple production in Nova Scotia---Dela Erith, Nova Scotia Apple Growers

Dela Erith represented the Nova Scotia Fruit Grower's Association and presented highlights from the tree fruit sector. Apples have been grown in Nova Scotia for over 400 years. On average, Nova Scotia produces 2.5M bushels of apples, which is 9% of the Canadian yield with a farm gate value of \$13M and an economic value of \$65M. Historically, there is an open growing season with a production cycle lasting up to 30 years. The climate is Maritime, which translates into warm days with cool nights, consistent precipitation, moderate winds and moderate winter temperatures.

Apple Producers have begun to realize and accept that they are experiencing 'climate change' and that an adaptation strategy is required that is supported with implementation tools.

Within the past 10-15 years, producers have been faced with several weather risks. There has been a persistent drought over the past 4 years and heat units have been inconsistent. The winds have been higher than normal posing a threat and temperature extremes have become more frequent. Of particular concern are the fruit-killing frosts in the spring and fall and the extreme winter cold which can kill the entire tree. Apple producers have begun to realize that this is 'climate change' and that adaptation is required.

Generally, growers have lived with the risks, using crop insurance to protect their incomes. Some producers however, know they need solutions to cope with recurring situations, such as drought, and are approaching science for innovation and ideas for adaptation.

On both the federal and provincial levels, there are many steps that could be taken to reduce fruit growers' vulnerability to climate and weather risks and increase their ability to adapt:

- Climate change considerations need to be coordinated with production research, as they are directly linked. For example, changes in temperature and the frequency of extreme weather can create different pest pressures, warrant the selection of a new apple cultivar or provoke changes to growing practices, water management etc.
- Long term predictive models would enable producers make better crop selection choices.
- Technology and adaptation implementation support would help make adaptation a feasible option for growers.
- Increase communication between policy makers (among ministries and between different levels) and commodity groups.
- Improve research and technology transfer initiatives.

Diversified Family Farming in Southern Ontario---Mary Lou Garr, Ontario Federation of Agriculture

The Garr family manages a number of enterprises in their Niagara county family operation including field crops, beef, and grapes. Concerns over the long-term viability of agriculture overshadow the multitude of economic, environmental, and climate risks encountered in the sector. In grape growing, decisions made today have outcomes for 30-40 year cycles of production. Climate models are neither a compelling nor secure reason to make investments in an uncertain future.

Agricultural production can be fragile (eg: BSE) and farmers have come to rely on off-farm income to manage the risk. There is a danger of losing the next generation of farmers because agriculture is no longer an economically secure option. Adapting to climate and weather risks cannot be appreciated without considering the uncertain environment facing most Canadian producers.

Coping with challenges and dealing with the uncertainties requires:

- sound and predictable government programs and reliable resources
- solid science to determine (among other things) how growing seasons will be affected by climate change
- technological advances, eg. web-based irrigation systems; genetic modification-could a cold tolerant gene eliminate frost damage and minimize climate related risks?
- publicly funded research for “reliable” “unbiased” findings the public will accept
- adopting a whole farm analysis approach so policies and programs are not at cross-purposes
- streamlined processes for water permits-timing is key
- viable support systems beyond crop insurance for production that is high risk (eg. fruit)
- building on existing strengths-what does the sector do well now and how can it be furthered?
- building on programs/partnerships that have worked in the past-need to learn from “success” stories (eg. VQA)

Agriculture in Atlantic Canada--Gordon Fairchild, Eastern Canada Soil and Water Conservation Centre, Grand Falls, New Brunswick

Climate and weather conditions have major direct and indirect effects on soil and water conditions in much of Atlantic Canada, a major potato production region. For instance, high levels of precipitation and low levels of evapo-transpiration result in massive runoff, affecting soil and water quality. Climate change will exacerbate existing problems. Warmer winters could mean an earlier and larger runoff. Increasing climate variability brings irrigation and water quality concerns. The potential for more intense rainfall events will possibly lead to more soil erosion with pesticides, bacteria, and excess nitrogen and phosphorous entering water courses, thereby negatively affecting water quality.

Water quantity may also prove to be a problem with climate change. Increased moisture deficits and frequency of localized drought may lead some farmers to consider implementing supplemental irrigation and water sourcing. There may not be a net shortage of water supply for agriculture on an annual basis, but there is competition over the allocation of the resource. Concerns include, water availability at critical periods, increasing demand from other users, sufficient water quality for livestock and irrigation, the lack of regulatory consistency, and the public perception that agriculture may be jeopardizing water quality and quantity.

(We) need to improve communication of cost effective risk management strategies and technology transfer to the farm gate in order to sustain our rural communities.

Efforts exist now to introduce techniques that will aid potato farmers in dealing with these risks. To reduce erosion, the following techniques are promoted: better crop rotation and strip cropping, the use of winter cover crops and green manures, conservation tillage, residue management, and mulching. On steeper fields, the strategies include: contour and cross-slope cropping, the construction of diversion terraces and grassed waterways, enhancing land drainage and nutrient management, and introducing sediment control basins. These initiatives are showing some progress; 50,000 acres of cropland are now protected using combinations of the above strategies. To cope with water quantity concerns, an integrated soil and water management approach is promoted. The strategy involves increasing the soil-water holding capacity and improving crop rotations. By addressing the problem of runoff and erosion, water quantity and quality issues will also be addressed.

Producers in Atlantic Canada will be well served by federal and provincial policies and programs that:

- bolster safety nets and crop insurance
- provide substantial support for best management practices in terms of developing programs and providing incentives
- support adaptation research, particularly practical demonstration sites
- develop long term sustainable resources
- build awareness and demonstrate cost/benefits of options

Some reflections on farming and climate change: perceptions and adaptations of farmers to climate change—Researcher, Chris Bryant Université de Montreal



Bryant's and his colleagues research focuses on understanding how farmers perceive and assess climate related risks and how they integrate these risks into their decision-making processes. Their research findings are based on insights gained from interviews with farmers, workshops involving groups of farmers and other professionals, insurance claims records along with climate scenarios and historical climate data.

Documented research indicates that producers think of the challenges from climate and weather in terms of regional variability of climate and water, and the impacts from drought. Risks are managed using the existing “tool bag”. They adopt efficient water management strategies, choose drought resistant crops and diversify their crops. When asked directly, weather variability patterns were identified as being significant but “climate change” appears to be a secondary concern. This is likely do to the fact that “climate change” is seen as an increase of average temperatures in the distant future, unrelated to weather variability and moisture deficits. Decisions on the farm are multi-faceted, often take a short-term perspective, and it is probable that there were more immediate stressors to focus on.

Many factors shape the capacity for producers to adapt, including personal factors related to finances, training, and awareness; farm characteristics involving its biophysical features; relations with the surrounding farm and non- farm community; specific stresses connected to particular production systems and regions; and a multitude of “generic” business constraints such as interest rates.

Governments have a role to play in building capacity in producers and their farming systems. Climate change adaptation policy and programs will benefit the agricultural sector more if it:

- recognizes the need to manage vulnerability from multiple stressors at once
- works toward building capacity at several levels (personal, community, sector)
- gathers more data to support planning tools and actions
- monitors and evaluates the impacts of adaptation to climate and weather conditions

Climate change is thus one among many sources of stress that require managing risk and vulnerability

4. WRAP-UP AND FUTURE DIRECTIONS

Bob MacGregor (Chief for Agricultural and Environmental Policy Analysis in AAFC) offered his observations on what had been presented and discussed during the panel presentation and question period.

Risks

- moisture-related stress is a key climate and weather risk across Canada
- risks can be both physical and institutional

Adaptation Issues

- go beyond greenhouse gas mitigation
- multi-stresses involved
- climate change adaptation is part of risk management

Research

- need more information from producers for government policy
- research has to be defined differently to include producer perspective more effectively
- whole-farm perspective on decision-making required
- begin with producers and what their information needs are
- consider the role of demonstration sites and participatory research

Communication

- need to reduce isolation of government departments both within federal ministries and between federal and provincial governments
- need to develop effective methods for interacting and appreciate communication is two-way
- government has a role to promote and facilitate climate change awareness

Program building

- must be meaningful to producers
- tools must be effective in whole farm context
- must recognize the heterogeneity of needs and situations

Role of Government

- create opportunities for climate adaptation research
- consider role of extension services
- ensure stability of programs
- develop partnerships between government and other relevant organizations to facilitate necessary changes

5. CLIMATE CHANGE RISK MANAGEMENT POLICY RECOMMENDATIONS

Despite the diversity in regional conditions and production focus, there are similarities in agricultural producers' needs and expectations regarding federal and provincial climate change adaptation policy. These are summarized in Table 2 where seven challenges and their implications for policy and program development are noted.

All presenters pointed out that uncertainty and variability in all aspects of agricultural production present major risks that must be managed concurrently. Some want more government involvement, others want less. All want stability - whether it is the stability of an insurance program, or the stability of a not-rapidly-changing policy environment. At the same time flexibility in policies and programs is crucial to ensure diverse needs are met from conditions in various types of commodity production, farming systems, biophysical environments, and personal circumstances.

Another dominant theme is that climate risk is not managed in isolation of other risks, thus climate risk policy must not be developed in isolation from other government initiatives affecting the Canadian agri-food sector. Much work is needed to understand agricultural production from an operating farm perspective-the "real farm experience" so that practical expectations can inform policy and programs and contribute to useful assessments of barriers and opportunities.

Examples of potential problems for producers managing climate risk include uncertainty in the value of climate data; apprehension about the public acceptance of recommended technology, and potential conflicts among programs and policies. Research support, effective technology transfer and more collaboration among different government departments and ministries (as well as across federal, provincial and, in some cases local, lines) will go a long way in generating effective climate adaptation policies and programs.

**Table 2. SUMMARY OF RISK MANAGEMENT POLICY CHALLENGES, SOLUTIONS, AND RECOMMENDATIONS
RELEVANT FOR CLIMATE CHANGE**

Challenge	Specifics	Solution	Recommendation for Policy
Economic Variability	Variation in: -income -interest rates -energy costs -dollar value	Income stabilization	<ul style="list-style-type: none"> • Main goal for agricultural policy should be agri-food sector stability. • AAFC and provincial Ministries of Agriculture should ensure the outcomes for the agri-food sector are considered when other ministries develop policy and programs that affect it. • Income stabilization programs must be adequate for future climate and weather risks.
Sector Variability	Variation in conditions and requirements: -across commodities -across regions -across types of farming systems	A “one size fits all” solution is not possible. Flexible policies/programs that lead to equitable results	<ul style="list-style-type: none"> • Ensure the diversity of conditions, needs and expectations for all sectors/regions are taken into account in policy and program development.
Main-Streaming	Adaptation to climate risks must be considered in light of other business risk strategies Farming systems management is highly integrated	Identify existing opportunities for integration into existing strategies Identify potential barriers to integration and uptake Become aware of real farm experiences	<ul style="list-style-type: none"> • Substantial support for research is needed; it must feature a producer perspective and “whole farm context” • Research must include assessments of barriers to adaptation including the policy/program environment • Include climate change adaptation in the APF; belongs directly in Business Risk Management but also relevant for the other “pillars” (Environment, Food Safety, Innovation, and Renewal)

**Table 2. SUMMARY OF RISK MANAGEMENT POLICY CHALLENGES, SOLUTIONS, AND RECOMMENDATIONS
RELEVANT FOR CLIMATE CHANGE** (continued)

Challenge	Specifics	Solution	Recommendation for Policy
Barriers to adaptation	Some adaptation options for climate risk pose challenges for farming community: -additional costs to producers -GE solutions compromise marketing products -conflicts with existing policy	Research needed to identify: -adaptation costs/benefits -implications of GE technology - potential conflicts and ways to make them complementary	<ul style="list-style-type: none"> • Support research that will: -provide long term and in-depth assessments -assess costs and benefits of climate risk adaptation options • Develop policy and programs based on research findings
Adequate Support	Some options require improved resources: -technology is lagging (eg weather forecasting needs to be more reliable) -effective knowledge transfer and financial support (incentives) needed to encourage effective risk management	Improved product development for “technological” adaptation options (eg. weather and climate forecasting) View farm management practices in light of climate adaptation options	<ul style="list-style-type: none"> • Re-establish research and extension services that work directly with producers • Establish climate change adaptation on “on-farm” demonstration sites
Communication	Information about climate change risks is not always consistent or reliable Insights from producers are not always recognized	Improved resources for generating information Enhanced “extension” services Place more value on producers’ knowledge	<ul style="list-style-type: none"> • Ensure information from government is well supported through research and presented in useful formats • Require producer representation on research and policy development teams
Enhancing capacity	Farming community needs more capacity to manage risks Public image of Agri-food sector can be one “neediness”	Look at past examples that worked (eg. need for new grape varieties resulted in successful collaboration between industry and government) Initiatives that reward sound management	<ul style="list-style-type: none"> • Work collaboratively with producers to ensure relevance of potential solutions • Aim for policy environment that provides assistance while promoting producers’ independence

Appendix "A"

C-CIARN AGRICULTURE

NATIONAL ADVISORY COMMITTEE MEMBERSHIP 2003-04

Name	Organization
Brian Abrahamson	Prairie Farm Rehabilitation Association
Chris Bryant	Université de Montréal
Bruce Burnett	Canadian Wheat Board
Gordon Fairchild	Eastern Canada Soil and Water Conservation Centre
Rob Gordon	Nova Scotia Agricultural College
Mike Goss	Canadian Agri-Food Research Council and University of Guelph
Geri Kamenz	Canadian Federation of Agriculture and Ontario Federation of Agriculture
Nancy Lease	Québec- Le Ministère de l'Agriculture
Bob MacGregor	Agriculture and Agri-Food Canada
Don McCabe	Grain Growers of Canada and Ontario Corn Producers' Association
Dave Sauchyn	Prairie Adaptation Research Collaborative

[Barry Smit](#) Scientific Director
[Ellen Wall](#) Coordinator/Manager
Johanna Wandel Research Associate
Stefanie Neumann Administrative Assistant

Appendix "B"

PARTICIPANT LIST
Climate Change Adaptation-a Producer Perspective:
what producers need and expect from federal and provincial governments

Holiday Inn Plaza la Chaudière (Gatineau, Quebec)
 February 25th
 8:30-2:00

Brian	Abrahamson	Prairie Farm Rehabilitation Authority (PFRA)
Marcia	Armstrong	C-CIARN Health
Andy	Bootsma	Agriculture and Agri-Food Canada (AAFC)
Steve	Broad	Innovative Farmers of Ontario
Chris	Bryant	Université de Montreal
David	Burhoe	Carleton University
Harvey	Clark	Agriculture and Agri-Food Canada (AAFC)
Larry	Davis	Ontario Federation of Agriculture
Terry Lee	Degenhardt	Canadian Federation of Agriculture
Ray	Desjardins	Agriculture and Agri-Food Canada (AAFC)
Claude	DesJarlais	Ouranos
Robert	Elvidge	Agriculture and Agri-Food Canada (AAFC)
Dela	Erith	Nova Scotia fruit growers
Gordon	Fairchild	Eastern Canada Soil and Water Conservation Centre
Sam	Gameda	Agriculture and Agri-Food Canada (AAFC)
Mary Lou	Garr	Ontario Federation of Agriculture
Carolyn	Goodfellow	Natural Resources Canada
Robert	Gorden	Nova Scotia Agricultural College
Barry	Grace	Agriculture and Agri-Food Canada (AAFC)
Ivan	Hale	Quebec Farmers' Association
Irene	Hanuta	Manitoba Ministry of Energy
Karla	House	Canadian Federation of Agriculture
Alrick	Huebener	Agriculture and Agri-Food Canada (AAFC)
Bruce	Junkins	Agriculture and Agri-Food Canada (AAFC)
Geri	Kamenz	Canadian Federation of Agriculture
Afzaal	Khan	Agriculture and Agri-Food Canada (AAFC)
Tanuja	Kulkarni	C-CIARN Landscape Hazards
Suren	Kulshreshtha	University of Saskatchewan
Claude	Lapierre	Agriculture and Agri-Food Canada (AAFC)
Nancy	Lease	Québec- Le Ministère de l'Agriculture
Steve	Lee	Natural Resources Canada
Cheryl	Lewis	Canadian Foundation for Climate and Atmospheric Science
Bob	McGregor	Agriculture and Agri-Food Canada (AAFC)
Cedric	McLeod	Canadian Pork Council
Don	McCabe	Grain Growers of Canada
Brett	Meinert	Meinert Enterprises, Shaunavon Sask
Barclay	Meinert	Meinert Enterprises, Shaunavon Sask

Hugues	Morand	Agriculture and Agri-Food Canada (AAFC)
Stefanie	Neumann	University of Guelph
Michelle	Reinsborough	Natural Resources Canada
Gerald	Renaud	SAGIE Inc.
Frances	Rodenburg	Canadian Agri-food Research Council
Dave	Sauchyn	C-CIARN Prairies
Jilene	Suave	Alberta Agriculture Ministry
Ryan	Schwartz	Natural Resources Canada
Bhawan	Singh	Universite de Montreal
Janet	Shuh	Ontario Ministry of Agriculture and Food
Barry	Smit	University of Guelph
Stephen	Smith	Agriculture and Agri-food Canada (AAFC)
Abdoul A.	Sow	Agriculture and Agri-food Canada (AAFC)-NLWIS
Janice	Unger	Agriculture and Agri-food Canada (AAFC)
Ellen	Wall	University of Guelph
Johanna	Wandel	University of Guelph
Mary Ann	Wilson	Agriculture and Agri-food Canada (AAFC)



Climate Change
Adaptation-a
Producer
Perspective on
Adaptation Policy

C-CIARN AGRICULTURE

**Holiday Inn Plaza la Chaudière (Gatineau, Quebec)
Salon A and B**

- 7:45** **Continental Breakfast/Registration**
- 8:30** **Welcome**
(Ellen Wall, C-CIARN Agriculture)
- 8:40** **Setting the Context**
(Barry Smit, C-CIARN Agriculture)
- 9:00** **Producer Insights**
(Moderator-Johanna Wandel, University of Guelph)

Brett and Barclay Meinert, Shaunavon, Saskatchewan
Dela Erith, Kentville, Nova Scotia
Mary Lou Garr, Niagara, Ontario
- 10:10** **Break**
- 10:40** **Industry and Research Insights**
(Moderator-Johanna Wandel, University of Guelph)

Gordon Fairchild, Soil and Water Conservation, N.B.
Chris Bryant, Université de Québec à Montréal
- 11:15** **Questions/Discussion:**
Producers, Industry, and Research Representatives
(Moderator, Barry Grace, AAFC)
- 12:00** **What we have learned**
(Bob MacGregor, AAFC)
- 12:15:** **Lunch :Closing Remarks**
(Barry Smit, C-CIARN Agriculture)

