Agriculture and Agri-Food Canada | Agriculture et Agroalimentaire Canada

Canada

An overview of climate change adaptation in the Canadian agriculture sector

Jamie Hewitt , AAFC - Senior Policy Analyst

Adaptation Canada 2016 Symposium

Ottawa, April 12th

Our Vision

Driving innovation and ingenuity
to build a world leading agricultural and food economy
for the benefit of all Canadians.

Our Mission

Agriculture and Agri-Food Canada provides leadership
in the growth and development of a competitive, innovative
and sustainable Canadian agriculture and agri-food sector.

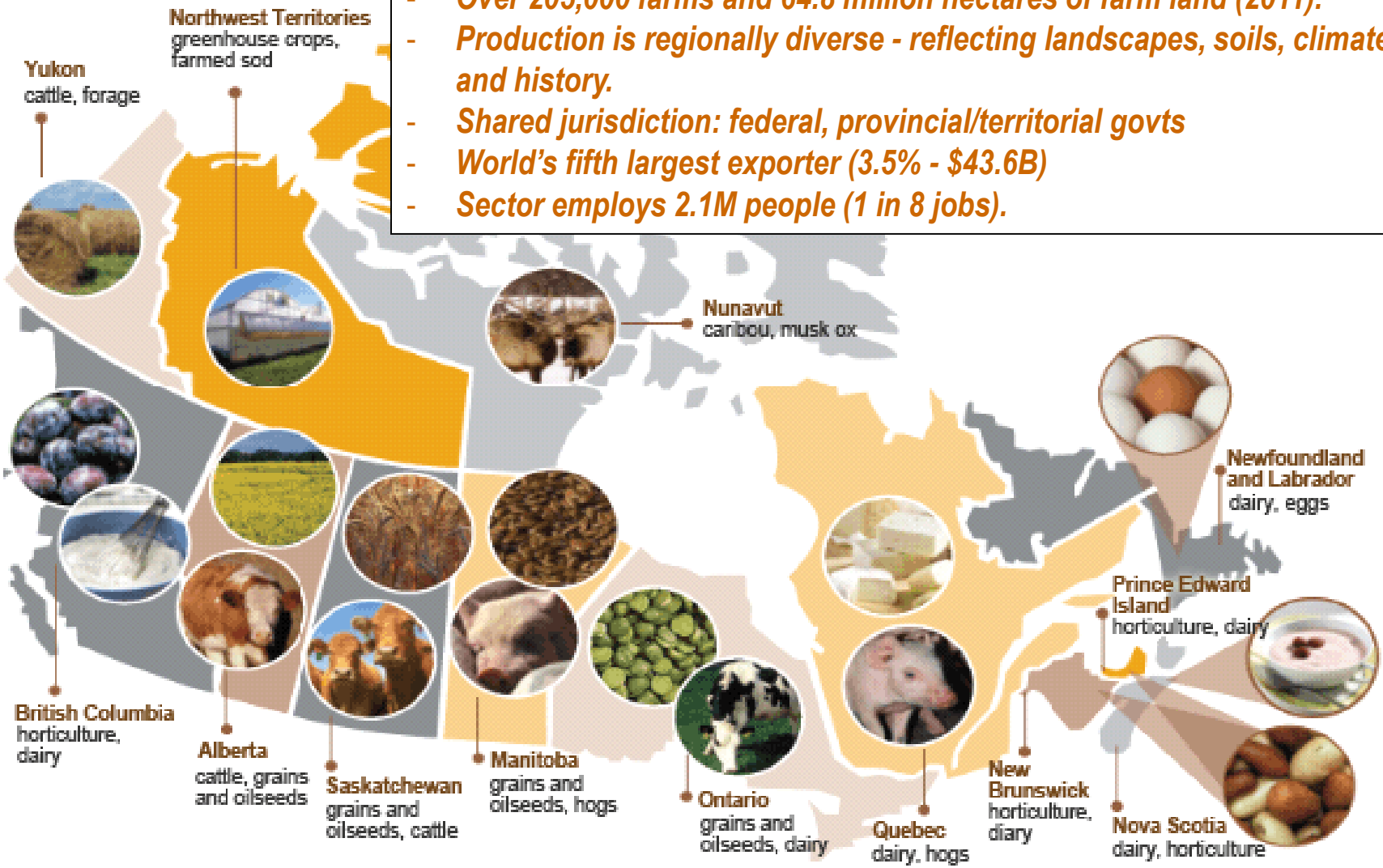
Outline:

- Agriculture in Canada
- Anticipated climate trends, impacts, risks and opportunities
- Agricultural adaptation
- Agriculture and Agri-Food Canada
- Closing remarks

Background: Canadian Agriculture

Top Commodities by Province and Territory

- *Over 205,000 farms and 64.8 million hectares of farm land (2011).*
- *Production is regionally diverse - reflecting landscapes, soils, climates, and history.*
- *Shared jurisdiction: federal, provincial/territorial govts*
- *World's fifth largest exporter (3.5% - $43.6B)*
- *Sector employs 2.1M people (1 in 8 jobs).*



Climate Change and Agriculture

- Increase temperature
- Shift in precipitation
- Increase in extreme events
- Rising sea levels

- Longer growing season
- Shift in cropping patterns/pest and diseases
- Water stresses (excess and shortages)
- Infrastructure (on-farm and transportation)
- Loss and gain of agricultural lands

Changes and impacts will not be uniform…

Region	Climate Change	Impacts
Central	Southern Ontario can expect the number of days over 30 degrees to double by 2050	Heat stress for plants and animals may become a concern.
	Shifts in the cycle of precipitation will lead to wet winter and spring, dry summers. Bigger shifts in south than North.	With drier summers, irrigation/water management needs may increase
	Growing season is expected to increase for all regions of Ontario and particularly in the south.	
	Increased evapotranspiration due to higher summer temperatures	Higher evapotranspiration may increase water stress in plants
Atlantic	Across all Atlantic provinces, temps will increase ~1.7 degrees C by 2020, ~2.6 degrees C by 2050, ~3.3 degrees C by 2080.	Increased temperatures may impact production decisions.
	Sea level rise by 140cm in NB, 133cm in PEI, 140 in NL, and 500cm in NS over next 100 years.	Flooding risks may increase in select regions.

Agriculture and adaptation

- Sector is inherently adaptive
  - ability to adapt annual management decisions to gradual climatic changes, and seize opportunities
  - key to adaptive capacity is access to information that will help inform management and investment decisions

- Extreme events will be more challenging, can be beyond individual producer

- Adaptive capacity of sector will also be influenced by off-farm/region factors
  - Example: water and land use decision making

Region	Adaptation Examples
British Columbia	- Regional risk and opportunity assessments - Regional-scale adaptation plans and - Supporting farm-level adaption (BC Agriculture & Food Climate Action Initiative's planning projects, led by the BC Agricultural Research & Development Corporation)
Prairies (Alberta to Manitoba)	- Improving irrigation efficiencies - Surface water management for both regional excess moisture and drought conditions, - Exploring improved hydrologic modelling (e.g. Assiniboine River and Bow/S. Sask. River).
Ontario	- Research into impacts on crop yields, - Insurance tools and modelling for new crop varieties, - Climate change impacts for Lake Simcoe region, and improved water efficiency research.

Region	Adaptation Examples
Quebec	-Improving efficiencies in water use and agroforestry management for landscape resiliency, -Improving access for weather network data (Agrométéo). -Research addressing climate change risks, specifically research related to the risk of increased pest pressures from climate change, led by Ouranos.
Atlantic (NS, NB, PEI, and NL)	-Working towards improving weather forecasting -Managing lands susceptible to erosion, and -Exploring the risk from increased coastal flooding due to rising sea levels.
Territories	- Work on permafrost soils, - Biosecurity program for emerging risks to animal and plant health.

Other indirect adaptation efforts

- Provincial incentive programs to adopt “beneficial management practices” (BMPs)
- Integrating climate change mitigation and adaptation into Environmental Farm Plan material (Ontario)
- Growing Assurance EG&S program for wetland restoration and conservation (Manitoba)
- Forage and Cover Crop Programs – targeted to prairies (Ducks Unlimited Canada).

Support through AAFC

Two principle ways that AAFC supports sector adaption:

- Policy and programs
  - Stewardship programs (previously presented)
  - Suite of Business Risk Programming (Crop Insurance; AgriRecovery)
  - Agriculture Adaptation Working Group

- Science, research and innovation
  - Research and demonstration by AAFC (new crop varieties/traits, climate modelling/monitoring,
  - Funding for external research and innovation (e.g. research clusters, AgriInnovation Program)

Agriculture Adaptation Working Group

Take stock of existing work and development of two papers:

- Vulnerability/Risk Assessments:
  - risk assessments should be simplified; format needs to suit end users; precise language; diverse stakeholder engagements; verify results through experts

- Barriers to Adaptation:
  - ***Knowledge:*** technical scientific knowledge and data on climate change forecasts and expected impacts on the sector and producer awareness of the issues
  - ***Funding:*** research/program delivery and resources

	U.S.	AUS.	NZ.	CAN.
Overarching agricultural adaptation strategies/frameworks in place	👍	👍*	👍*	👍*
Agriculture sector vulnerability assessments undertaken	👍	👍*	👍*	👍*
Agricultural adaptation funding available	👍	👍*	👍	👍
Adaptation as a priority research area	👍	👍	👍	👍
Knowledge transfer activities	👍	👍	👍	👍*

Note: Asterisk denotes areas where the activity is being undertaken, but is either dated, ad hoc, or at a very high level.

Building sector resilience going forward

Barriers/Challenges

- Regionally specific information
- Funding/resources
- Engagement

Opportunity for Project Funding

- AgriRisk Initiatives – Research & Development stream
- Encourage more regional vulnerability and opportunity assessment projects (similar to B.C.'s CAI).
- Proactive approach to engage sector through regional workshops, identify/evaluate priorities, and undertake action that will build sector resilience.

Questions

Jamie Hewitt, Environment Policy Division
Agriculture and Agri-Food Canada
Jamie.Hewitt@agr.gc.ca / Tel: 204-259-4021