Barton Forward: Optimizing Growth

The risks and opportunities for growth

by

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Presented at the CAPI-AgWest Bio Workshop

Saskatoon
December 11, 2017
Barton Forward Workshop Evaluation

1. Comments on Structure of Workshop
2. Comments on Value of Materials Presented
3. Comments on Ability to Present My Ideas
4. Comments on Workshop Venue and Logistics
5. What worked well? What can we do better?

Add a tweetable quote?

Thanks for your participation!

Presented at the CAPI-AgWest Bio Workshop
Saskatoon -- December 11, 2017
“Canada will become the trusted global leader in safe, nutritious, and sustainable food for the 21st century”—would reflect the strength of our starting position, as well as the global trends we can exploit.”
Exhibit 2  
Canada could target an 8 percent global market share in agricultural products by 2027.

Exhibit 3  
Canada could aim to double its global market share in agfood products by 2027.
Population growth will not occur where income growth is high

**Figure 1.2** Population growth to 2100, by region (medium variant)

Source: UN, 2015.
Global consumption will grow at a much slower rate

Global consumption, average annual % increase

- From population growth
- From growth in consumption per person or non-food consumption

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<thead>
<tr>
<th></th>
<th>2007-16</th>
<th>2017-26*</th>
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<tr>
<td>Fish</td>
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<td>Cereals</td>
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<td>Fresh dairy</td>
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<td>Meat</td>
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Sources: OECD; FAO

*Forecast
Global trade to year 2026 will be growing at a slower rate

OECD projects growth in trade volumes, mirroring production growth, with the exception of a few commodities will be much lower than the previous decade.

Note: The population growth component is calculated assuming per capita demand remains constant at the level of the year preceding the decade. Growth rates refer to total demand (for food, feed and other uses).

Who will be importing

Figure 2.12  Percentage of net food imports in domestic food supply in total calories

Who will be exporting

• OECD projects that top five-country export concentration ratio to increase and exceed the current level (above 70%).

• Canada is the 5\textsuperscript{th} global ranked exporter of agricultural commodities, including red meats.

• Importers will continue to be more widely dispersed than exporters.

• A small group of exporters will be trying to sell to numerous small importers

• Expect continued jockeying for export position improvements.

Source: AAFC-MTO, 2017
Canada’s Agri-food trade

AAFC projects exports of Canadian agricultural and agri-food products to increase 1.4% per year on average and continue to produce a trade surplus.
Canada’s Agri-food exports

AAFC projects exports of Canadian agricultural and agri-food products to reach nearly $65 billion in 2026 with significant increase in the share of intermediate goods.

Source: Statistics Canada; AAFC Calculations.
National food policy is to build “public trust” through sustainable growth

• How do we meet the goals of the growth strategy and the objectives of our Food Policy simultaneously?

• How do we reconcile the growth targets particularly with the sustainable use of resources?

• How do we succeed better in global markets that are glutted with subsidized food?

• Can science help?
National Food Policy aligns with the demand of fast growing high quality export markets

China Growth Trends

Young middle class consumers showing buying power

“The pursuit of health and safety is the major trend in consumer upgrades in China” – Nielsen Research

Proposed National Food Policy

Improving health and food safety

Growing more high quality food

By 2030, China will have one billion people with the purchasing power of an average Canadian or Australian
Can we increase food exports while conserving our soil, water and air and what about affordable food?

Proposed National Food Policy

Increasing access to affordable food

Conserving our soil, water and air
And without increasing the risks of epidemics

One Health: People, Pathogens and Our Planet ©
World Bank Study: China may be reaching a tipping point with pollution of land, air and water

12.3 mil ha (10% of arable land) too contaminated for agriculture

Pollution crisis is choking the Chinese economy

The Asian colossus is losing 6.5 percent of GDP to pollution-rated costs.

Constance Gustke, special to CNBC.com
Published 9:24 AM ET Thu, 11 Feb 2016 | Updated 9:49 AM ET Tue, 16 Feb 2016

WATER SCARCITY AND POLLUTION

FIGURE 5.2 Polluted Water in Supply in China

The World Bank
State Environmental Protection Administration, P. R. China
Conserving soil, water and air will sustain profitable growth

Top ten exporters and importers of groundwater depletion embedded in food trade

From
Environmental science: Eating ourselves dry
Maito M. Aidaya
Nature 543, 633–634 (30 March 2017) doi:10.1038/543633a

Canadian agriculture is largely rain dependent
Globally 11% of all food traded internationally relies on groundwater depletion.
World Economic Forum Global Risks

For the next 10 years

<table>
<thead>
<tr>
<th>Risk</th>
<th>Probability</th>
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<tbody>
<tr>
<td>Water crises</td>
<td>39.8%</td>
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<tr>
<td>Failure of climate-change mitigation and adaptation</td>
<td>36.7%</td>
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<td>Extreme weather events</td>
<td>26.5%</td>
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<tr>
<td>Food crises</td>
<td>25.2%</td>
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<td>Profound social instability</td>
<td>23.3%</td>
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Plus:
The “new” one health crisis – infectious zoonotic disease, antimicrobial resistance, mushrooming chronic disease
Netherlands’ success growing agri-food exports using intensive production comes with high environmental cost

- Agriculture generates €10,341 million annually
- Negative externalities €1,868 million annually (mostly GHG & water)
- External benefits €263 million,
- Net external costs €1,605 million or 15.5% of production (€988.4 per hectare compared to €20 to 64 per hectare in the US) G. Cornelis van Kooten, et.al.

Farming is 'single biggest cause' of the worst air pollution in Europe. Nitrogen compounds from fertilisers and animal waste drifting over industrial regions is combining to form fine particulate pollution.
Canadian agriculture has steadily reduced GHG emission intensity in livestock.

Canada is one of the most GHG efficient producers of animal protein. How do we achieve CO2-e neutrality and how do we leverage this?

Source: FAO and AAFC
Key findings of the EU Agri Committee of the European Parliament:

- For bovine meat sector the level of support was 100% of total net farm income
- For dairy sector the level of support was 49% of total net farm income
- For cattle sector the level of support was 57% of total net farm income

Source: EU-DG for Internal Policies Research for Agri Committee-The EU Cattle Sector: Challenges and Opportunities-Milk and Meat, 2017

...without destroying our natural capital!
Canada is also one of the lowest cost producers of hogs while Netherlands benefits from large E.U. subsidies

<table>
<thead>
<tr>
<th>Source: Agri-Food Economic Systems Trade study prepared for CAPI, 2 May 2017, page 128, figure 5.20</th>
<th>Cumulative Differences in Cost Items for Hogs Between Canada and Other Countries 2014 (€/kg)</th>
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<td>Country</td>
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Subsidized high cost producers glut the growth markets
Canada can succeed in high-value products such as chilled pork exports to Japan.
Monetizing “trust” will require accountability, transparency & authenticity throughout the production system

**Traceability**
- unlocks value in provenance, ethics, health & sustainability
  - Maple Leaf Foods multi-year trial of DNA traceability – only imported branded pork in a major Japanese supermarket at the time

**Identity and authenticity**
- Reduces food fraud & specific pathogen ID & tracks new life forms
  - linked to International Bar Code of Life in use by Canadian Food Inspection Agency

**Transparency**
- Remote sensing provides field level results for GHG production or mitigation
  - Will lead to a value for sustainability
Technology could help but has to build trust

Perceived benefits and negative consequences of 12 emerging technologies

The new world of risks and opportunity

Drivers of change for Canadian agri-food sector:

- **The New One health:** Microbe-plant-animal-human ecology
- **Fourth Industrial Revolution:** AI, CRISPR, Big data, Remote sensing, E-commerce
- **Public Trust:** Transparency, Authenticity, Food, Health, Environment
- **State of natural capital:** Air, Soil, Water, Biodiversity
Figure 2. Natural capital per person, Canada - 1980–2013
Optimizing Growth: Balanced growth in inclusive wealth

Source: Smart Prosperity Institute
Growth will have to come from innovation and high value products

Area harvested: Major crops
(million acres)

Source: AAFC-MTO 2017
AAFC, Canada: Outlook for Principle Field Crops, October 13, 2017
Wealth middle class speaks Chinese

Wealth middle class by region, in million

- China: 561 million
- Latin America: 138 million
- Western Europe: 104 million
- Eastern Europe: 64 million
- North America: 53 million
- Oceania/South Africa: 88 million

Sources: National Central Banks and Statistical Offices, UN Population Division, UNU WIDER, World Bank, Allianz SE.