

Acknowledgements

This short report provides a synthesis of what we have heard from participants (Annex 1. List of Participants) of a recent workshop (Annex 2. Workshop Program) following four presentations. The report aims to remain true to the essence of the discussions and does not necessarily reflect the views and opinions of organizers.

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Canada 

Preamble

Across the globe, disruptive new technologies are transforming the economy and society, as well as creating change at an unprecedented and unpredictable pace. The potential for these new technologies in the agri-food sector is huge. The promise is no less than more nutritious, safer food produced at a lower cost, with fewer inputs and with less environmental impact. The adoption of disruptive new technologies, therefore, can deliver huge benefits but such new technologies also raise new consumer concerns and could create deep public mistrust. Left unchecked, a public mistrust about technology could result in a failure to exploit the full benefits of emerging new agri-food technologies. This uncertainty is also set against a backdrop of a growing skepticism with current political and economic structures. Divergent responses by governments across jurisdictions, and the pace of policy development and regulatory responses that do not keep up with the speed of technological changes, add to the uncertainties and may further hamper the successful adoption of new technologies.

Not having appropriate institutional structures and new pathways that could both generate more trust in the public and facilitate the timely adoption of new technologies in the most appropriate manner, has implications for Canada's competitiveness. **Can we do more to facilitate timely adoption of new technologies in the agri-food sector while enhancing public trust?** This complex question applies to all participants of innovation systems from food scientists to manufacturers. To explore answers to this question, the Canadian Agri-Food Policy Institute (CAPI), the Biodiversity Institute of Ontario (BIO), and the Food Institute (FI) of the University of Guelph convened a small workshop of inter-sectoral experts at the University of Guelph in February 2017.

What We Heard

Based on an array of issues facing society and stakeholders, the dialogue revealed that several principles underscore how we can achieve strategic directions, and key recommendations for policy makers, regulators and industry players. Overall, out of these discussions, the following key points emerged.

Strategic Directions:

1. Facilitating the adoption of new technologies is vital to Canada's agri-food sector's **productivity, sustainability and competitiveness**.
2. Harmonizing standards & regulations with our trading partners and increasing the speed of regulatory responses will improve our **market access to new emerging markets**.
3. Developing and implementing innovative approaches for effective and timely introduction of new technologies and new products are critical to ensure **public trust in the sector and confidence in Canada's regulatory system**.
4. Strengthening **Canada's brand** through the socially and environmentally responsible release of new technologies and products will give Canada an advantage in influencing global practices.

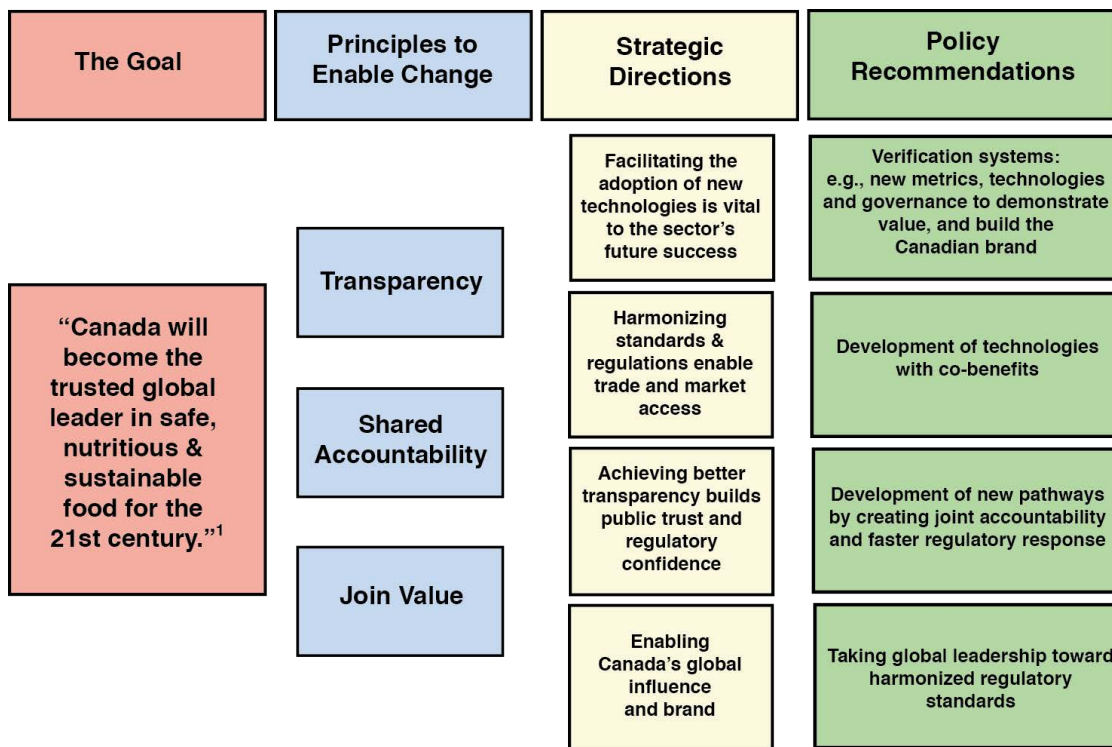
Principles to Achieve These Strategic Directions:

1. **Transparency**. Transparency is imperative:
 - a. To promote the adoption and acceptance of new technologies;
 - b. To facilitate regulatory harmonization and improved market access and; ultimately
 - c. To enhance public trust and to help consumers make informed choices.

2. **Shared Accountability.** All stakeholders, including science and research communities, policy makers, technology developers, suppliers, adopters and regulators, need to be better engaged and be held to a greater level of public accountability.

3. **Joint Value.** Much of the workshop discussion focused on the “value” of embracing new technologies. Yet, many are frustrated that others in society do not agree. Moreover, there is a perception that the benefits of progress are largely accruing to “the few” and are not conferring benefits to the bulk of society, thus fostering substantial skepticism and mistrust. New technologies will have a better chance of being accepted if they deliver broad benefits for both users (e.g., improved productivity for producers, lower prices for consumers) and society (e.g., improved ecosystems and food quality).

Figure 1: Enabling the adoption of new technologies requires a well-orchestrated approach



¹Advisory Council on Economic Growth

Recommendations

There are various current initiatives that address public trust, traceability, transparency and shared accountability. These efforts are led by various commodity groups or sector-based value chain roundtables. Improved transparency and building public trust are common themes that are critical to the success of the sector at many levels. The primary focus of the recommendations presented here is about facilitating/accelerating new technologies adoption while acknowledging that public trust and transparency are a precondition to broad acceptance of new technologies.

The discussions during this workshop made it very clear that transparency, and the systems required to improve it, as well as shared accountability across the innovation systems, starting from scientific discovery and continuing through the stage of introducing new products to the markets, are imperative for the successful introduction of new technologies and new products into domestic and global markets. The following specific recommendations aim to set out a roadmap to enable effective assessment and acceptance of new technologies. This is our added value.

To realize the benefits of agri-food innovation Canada must:

1. Develop both the technologies and governance structures to create **verification and audit systems** that demonstrate value to the society and ensure public trust in food safety and quality attributes. This can be achieved by:
 - a. Developing a broad suite of “quality attributes” pertaining to the environmental and social impact of food production and establish transparent methodologies for their verification
 - b. Developing new and improved standards and metrics and linking this with open access databases
 - c. Introducing new technologies and new products to drive transparency thereby ensuring public trust in the sector and confidence in Canada’s regulatory system. Such technologies include DNA barcoding and the use of other bio-tracers (e.g., fatty acids, isotopes) that will provide a data-driven infrastructure to assure full food-chain transparency
 - d. Creating a Regulatory Advisory Council linked with third party verification and certification to establish trust in “Brand Canada”
2. Invest in research to develop **technologies with co-benefits** that will deliver improved productivity while reducing environmental impacts and providing health benefits. This includes developing the databases and data management structures to ensure that technology can be deployed not only to reduce agriculture’s environmental footprint but also provide transparency in complex global food supply chains.
3. Innovate **new approaches and pathways** for successful and timely introduction of new technologies and products, where a shared accountability/responsibility is assumed by the entire innovation chain including scientific community, policy makers and regulatory agencies, technology providers and all members of the food system. This can be achieved by:
 - a. Creating new institutional structures with shared accountability, e.g., a multi-stakeholder advisory council/oversight for CFIA
 - b. Facilitating faster regulatory responses while having systems in place to mitigate any unforeseen risks

c. Improving public trust in innovation process through modern communication tools that enhance the understanding of the broad benefits of existing and new technologies

4. Take **global leadership** towards developing global standards and harmonized regulatory systems, particularly in the emerging markets, that will facilitate trade by starting a global and national dialogue on regulatory harmonization.

In conclusion, the agri-food sector must establish a better connection with consumers. Credibly demonstrating the benefits of new technologies to environmental and human health, and to the competitiveness of the sector and building trust is key to facilitating the acceptance of new technologies. Exploiting the full benefits of new technologies in a manner that is socially acceptable will help build Canada's food brand at home and globally and this requires instilling new accountabilities across the innovation community, food system and governments. Governments, industry and the scientific community need to orchestrate a new collaborative approach to enable new technologies and remain relevant as the speed of innovation unfolds.

Annex 1

List of Participants

Ian Affleck	Crop Life
Pierre Bilodeau	Canadian Food Inspection Agency (CFIA)
Ted Bilyea	Canadian Agri-Food Policy Institute (CAPI)
Andreas Broeker	University of Guelph
Malcolm Campbell	University of Guelph
Rozita Dara	University of Guelph
Tim Faveri	Maple Leaf Foods
Evan Fraser	Food Institute of the University of Guelph
Ellen Goddard	University of Alberta
Robert Hanner	Biodiversity Institute of Ontario, University of Guelph
Afton Houlden	Maple Leaf Foods
John Kelly	Board member Ontario Genomics, KeliRo Company Inc.
Peter Kevan	University of Guelph
Cornelia Kreplin	AI BIO Alberta Innovates
David McInnes	Canadian Agri-Food Policy Institute (CAPI)
Denis Petitcherc	Agriculture and Agri-Food Canada (AAFC)
Peter Phillips	University of Saskatchewan
Graham Plastow	University of Alberta
Stuart Smyth	University of Saskatchewan
Deb Stark	Ontario Ministry of Agriculture, Food and Rural Affairs (retired)
Gord Surgeoner	Ontario Agri-Food Technologies (OAFT)
Vernon Thomas	Biodiversity Institute of Ontario, University of Guelph
Mario Thomas	Biodiversity Institute of Ontario, University of Guelph
Giuliano Toluoso	Agriculture and Agri-Food Canada (AAFC)
Mike Toombs	Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA)
Brian Treacy	Monsanto
Paul Uys	Food Institute of the University of Guelph
Tyler Whale	Ontario Agri-Food Technologies (OAFT)
Daniel Yeon	Canadian Agri-Food Policy Institute (CAPI)
Tulay Yildirim	Canadian Agri-Food Policy Institute (CAPI)

Annex 2

Workshop Program

Embrace or Reject It – the Implications of New Technology Adoption for Canada’s Agri-Food Future

Day 1 – Wednesday, February 1

12:30pm-1:00pm Registration

1:00pm-1:15pm Opening remarks (David McInnes, Canadian Agri-Food Policy Institute, and Malcolm Campbell, University of Guelph)

Session 1: Emerging tools to manipulate the genetics of plants and animals in agriculture

1:15pm-1:35pm

Chair: John Kelly, KeliRo Company

Presenter: Ellen Goddard, University of Alberta

Discussants: Ian Affleck, Crop Life

Denis Petitclerc, Agriculture and Agri-Food Canada

1:35pm-2:35pm Open discussion

Session 2: Emerging tools to change farm management (precision ag and smart livestock management)

2:35pm–2:55pm

Chair: Paul Uys, Food Institute of the University of Guelph

Presenter: Rozita Dara, University of Guelph

Discussants: Gordon Surgeoner, Ontario Agri-Food Technologies

2:55pm-3:55pm Open discussion

3:55pm-4:15pm Health Break

Session 3: Emerging tools that lead to better surveillance and control of invasive species and pests that impact crops (DNA barcoding, isotopes, bio-tracers)

4:15pm-4:35pm

Chair: Mario Thomas, Biodiversity Institute of Ontario

Presenter: Vernon Thomas, Biodiversity Institute of Ontario

Discussants: Tom Wright, Ontario Ministry of Agriculture, Food, and Rural Affairs

Stuart Smyth, University of Saskatchewan

4:35pm-5:30pm Open discussion

5:30pm-7:00pm Free time

7:00pm Dinner – including informal presentations by:

Heather Burrows, University of New England, Australia
Brian Lindsay, Director for the Dairy Sustainability Framework, Global Dairy Agenda for Action, UK

Day 2 – Thursday, February 2

Session 4: Policy and regulatory issues affecting the adoption of new/disruptive technologies and consumer acceptance

8:30am-8:50am

Chair: Deb Stark, Ontario Ministry of Agriculture, Food and Rural Affairs (retired)

Presenter: Brian Treacy, Monsanto

Discussants: Peter Phillips, University of Saskatchewan
Pierre Bilodeau, Canadian Food Inspection Agency

8:50am-9:50am Open discussion

Session 5: Breakout Groups

Chair: Evan Fraser, Food Institute of the University of Guelph

10:00am-12:00pm Breakout group discussion

12:00pm-12:30pm Lunch

12:30pm-1:30pm Report back from breakout groups

1:30pm-2:00pm Final discussion and close