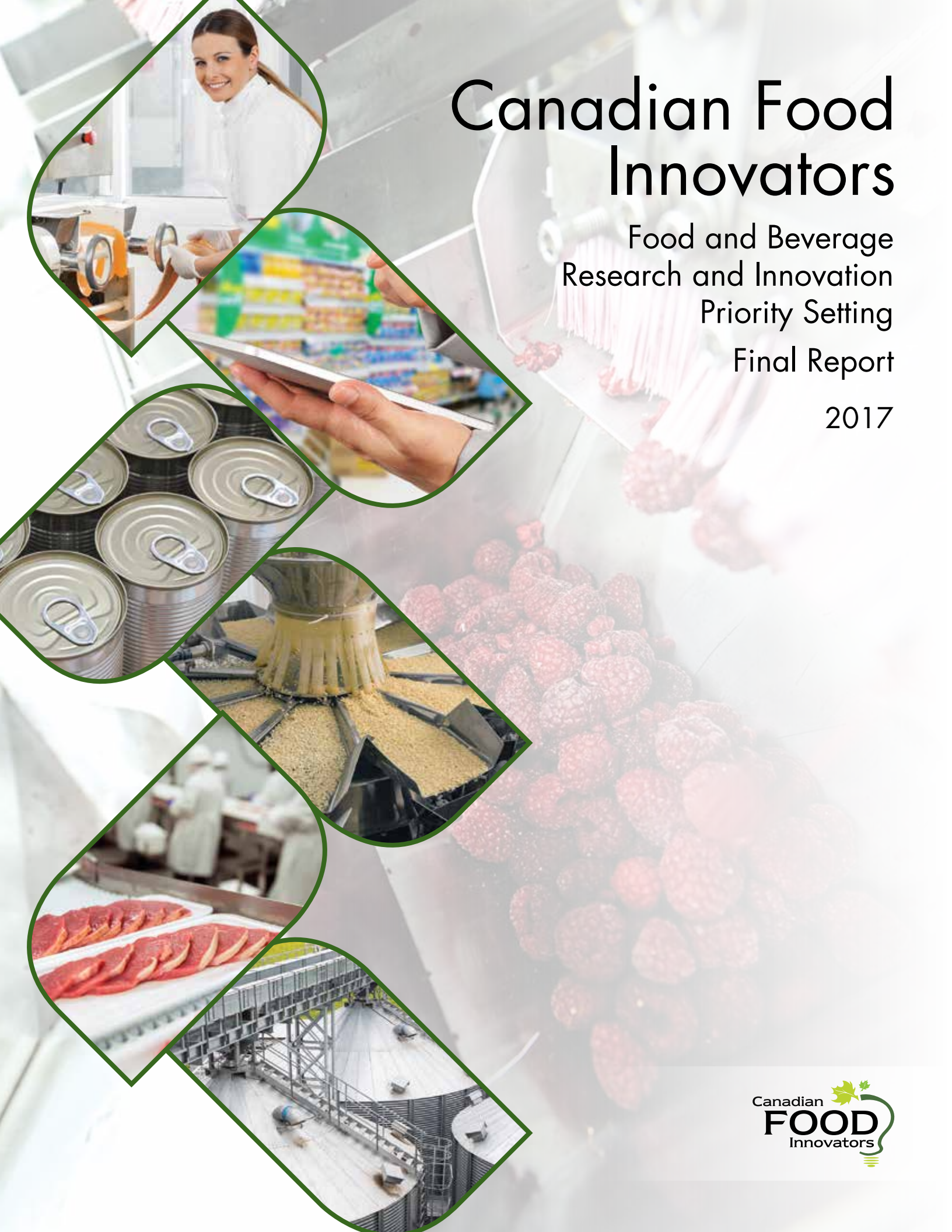

Canadian Food Innovators

Food and Beverage Research and Innovation Priority Setting

Final Report

2017

Canadian FOOD Innovators

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In addition to the significant funding support provided by Agriculture and Agri-Food Canada, Canadian Food Innovators acknowledges the key role of the Guelph Food Technology Legacy Fund in supporting the extensive consultation process summarized by this report. CFI contracted with Agri-Food Project Services Ltd. to undertake the consultations and prepare the reports. Special thanks to Lilian Schaer and Hugh Maynard for their exceptional effort in completing this demanding task on time and on budget, to Valérie Lalonde for outstanding service in undertaking translation, and to Glenn Knight at Prism Studios for the layout and design of the report.

Executive summary

With the support of Agriculture and Agri-Food Canada and in conjunction with members of the Canadian Council of Food Processors (CCFP), Canadian Food Innovators (CFI) undertook development of a prioritized plan for food processing research and innovation in Canada at the company level. This process included seven regional and one national meeting with representatives from large and small food and beverage processing businesses, the research community, government, and organizations that support innovation in the sector. An environmental scan of food processing innovation research in Canada and a nationally distributed survey were also completed.

As a result of this consultative process, the following priority research theme areas have been developed:

Food solutions that build public trust and address consumer needs: health and wellness innovations (e.g. products with reduced levels of sugar, fat and/or sodium); clean label foods (e.g. foods with minimal additives); and functional foods and novel ingredients (e.g. prebiotics, probiotics).

Food safety innovation: showing innovative processing technologies and product formulations are safe; packaging innovations that extend shelf-life, enhance safety and quality attributes; and advanced detection methods for pathogens, adulteration and other risk factors.

Innovative technologies that contribute to sustainable practices and climate change mitigation: automation for higher productivity from labour and/or gains in yield and recovery; process improvements for better quality and performance, higher efficiency/ reduced cost, and/or greater flexibility; clean technologies that offer more efficient use of water and energy resources and/ or reduced greenhouse gas emissions; and reduced packaging and/or expanded application of biodegradable packaging or fully recyclable packaging.

Value-added products and processes for market growth and global competitiveness: developing innovative products using commodity ingredients (e.g. dairy, pulses, grains, and produce) with a focus on those grown or produced in Canada; recovering greater value from waste streams and co-products; and extending the value of food ingredients through non-food applications.

Forum participants also expressed their need for support in other areas to help them advance research and innovation in their business. This need for support includes building greater awareness of the resources and expertise already in place in Canada through the development and promotion of an asset inventory, as well as facilitating collaboration and networking across the sector to build relationships that will lead to collaborative research projects and innovation initiatives. Beyond facilitating collaboration and awareness within the sector, a desire was also expressed to have CFI take on the role of lead agency representing the Canadian food and beverage processing industry in R&D and innovation related discussions with government.

The challenge in implementing the needs identified by forum participants is that of limited resources. In addition to seed capital to develop relevant products and services, there must also be a means to make them financially sustainable over the long term.

Summary of priority research themes

The following priority research theme areas have been developed as a result of CFI's cross-country forum process, nationally distributed survey, and consultation with national food and beverage processing leaders.

Food solutions that build public trust and address consumer needs

- Health and wellness innovations (e.g. products with reduced levels of sugar, fat and/or sodium)
- Clean label foods (e.g. foods with minimal additives)
- Functional foods and novel ingredients (e.g. prebiotics, probiotics)

Food safety innovation

- Showing innovative processing technologies and product formulations are safe
- Packaging innovations that extend shelf-life, enhance safety and quality attributes
- Advanced detection methods for pathogens, adulteration and other risk factors

Innovative technologies that contribute to sustainable practices and climate change mitigation

- Automation for higher productivity from labour and/or gains in yield and recovery
- Process improvements for better quality and performance, higher efficiency/reduced cost, and/or greater flexibility
- Clean technologies that offer more efficient use of water and energy resources and/or reduced greenhouse gas emissions
- Reduced packaging and/or expanded application of biodegradable packaging or fully recyclable packaging

Value-added products and processes for market growth and global competitiveness

- Developing innovative products using commodity ingredients (e.g. dairy, pulses, grains, produce) with a focus on those grown or produced in Canada
- Recovering greater value from waste streams and co-products
- Extending the value of food ingredients through non-food applications

CFI's priority research theme setting process

With the support of Agriculture and Agri-Food Canada, Canadian Food Innovators (CFI) undertook development of a prioritized plan for food processing research and innovation in Canada at the company level.

In conjunction with the members of the Canadian Council of Food Processors (CCFP), CFI undertook consultations with industry in spring 2017 to verify the research priorities of Canada's food processing sector. Seven meetings were held across the country to gather the input from industry representatives, including large processing businesses as well as small and medium enterprises (SMEs), academia, government, and organizations that support innovation in the sector.

Subsequently, a national meeting was held with food and beverage processing industry leaders and government representatives to review and validate the regional findings. Reports from all eight meetings are in the appendix of this document.

CFI retained Brezina Consulting to complete an environmental scan of food processing innovation research in Canada. This report, together with accompanying recommendations, is in the appendix of this document.

A survey was developed and distributed nationally in both official languages via the CCFP members in an effort to capture input from those who were unable to participate in one of the forum sessions.

Research themes

Food solutions that build public trust and address consumer needs

Being able to respond to consumer demands for new food products, address their preferences and perceptions, and take advantage of consumer food trends was the top opportunity identified by participants in six of the seven regions.

Several factors are responsible for this priority. One is changing demographics – millennial consumers, aging Baby Boomers, and immigration increasing Canada's diversity. Another is increased consumer awareness of and interest in how food is produced and where it comes from. Social conscience is an important factor in consumer choice and often formed by perceptions influenced by social and conventional media. The passion of consumers for food presents significant opportunities for new, healthier food and beverage products, more sustainable production, and uses for novel and functional food ingredients.

Health and wellness innovations

Food for health is a large opportunity, as healthy eating and government regulations mandating healthier food are seen as a big driver of innovation in Canada and around the world. This priority includes nutritional improvements, better digestibility, and the reduction or replacement of ingredients with negative health implications, like salt or sugar, through substitution or reformulation. It also provides expanded opportunities for plant-based ingredients, especially those that can be grown in Canada.

The focus on human health should be coupled with the ability to give consumers accurate, science-based information and not "Facebook health" in order for these types of products to earn public trust.

Clean label foods

Consumers are more aware of what they are feeding themselves, their children and their animals, and with a smartphone, information is at their fingertips. That information may include perceptions shared on social media that are not always science-based. The clean label movement is driving the food and beverage processing sector towards products with fewer or no additives, as well as natural, clean, sustainable production, an opportunity that can be addressed through processing changes as well as product reformulation.

Clean labels include the reduction or replacement of specific ingredients – like sugar, trans fats, gluten, preservatives and additives – in response to allergies, health concerns or a general desire for healthier lifestyles.

Development of new products is particularly important for companies with legacy brands or whose products are commoditized to enable them to stay fresh in the marketplace.

Functional foods and novel ingredients

Consumer trends and preferences are changing away from historically nutrient deficient foods towards newer, more nutritionally dense foods. This shift provides opportunities for products with enhanced benefits, such as functional foods and beverages containing probiotics or antioxidants, for example, or new plant-derived proteins that can support increasingly popular diet trends, such as vegan or vegetarian eating.

Food safety innovation

Food safety was mentioned in all regions across Canada as an important innovation area. It is considered a "must", however, and not a tool to be used for market advantage or differentiation. This consensus makes this theme a particularly ideal area for pre-competitive research in food and beverage processing. Pre-competitive research is the space where competing companies can work together toward a common, shared research goal.

Showing innovative processing technologies and product formulations are safe

Before a new processing technology or product formulation can be brought to market, it must be shown to produce food that is safe for consumers. New or novel technologies may fall outside of the current approved government regulatory framework for food safety, so they have to be independently tested and verified to ensure the end result is safe food. 'Fresh' food innovation is a case in point.

Many food additives contribute to inhibiting the growth of pathogens. As the chemistry of food is altered when sodium levels are reduced or when certain additives are eliminated, the need arises to show that the food product continues to be safe as reformulated.

Packaging innovations that extend shelf-life, enhance safety and quality attributes
Increasing shelf-life can help offset climate variables that provide either abundance or shortage of produce in any given year. There is considerable opportunity in changing or minimizing processing requirements to deliver quality that is like "fresh" in shelf stable products. Novel packaging can also help with shelf life extension, as can reformulating a product to have fewer ingredients but without compromising its performance characteristics.

Advanced detection methods for pathogens, adulteration and other risk factors
Opportunities for preventing product fraud were identified as a great opportunity for pre-competitive research in the sector. This includes preventing misidentification of ingredients and production of imitation or "knock-off" products that don't come with the traceability assurances, quality and standards the originals do. Advanced and rapid detection methods for pathogens are also important, especially as new health threats emerge in the form of new pathogens, new strains of existing pathogens, or increasing antimicrobial resistance.

Innovative technologies that contribute to sustainable practices and climate change mitigation

Technological advances were seen as a strong driver of innovation and in opening up avenues for companies to improve processes, solve problems or overcome hurdles related to production or products, improve mechanization and automation, boost food safety, adapt to the changing climate, and overall, drive profitability.

Automation for higher productivity from labour and/or gains in yield and recovery
Labour was cited as a priority area in all regions of the country – from recruitment and cost to training and retention. Increased mechanization and automation of food processing facilities can offset the challenge presented by the need and cost to recruit and retain suitable labour. At the same time, automation and mechanization have the potential to increase productivity and output through better precision as well as to reduce waste and improve efficiencies. Automation leads to activities becoming more integrated, data-driven and technologically advanced with corresponding needs for different workplace skills and competencies.

Process improvements for better quality and performance, higher efficiency/reduced cost, and/or greater flexibility
Innovative technologies and changing processes in food and beverage manufacturing facilities can boost output and productivity, as well as increase product quality. By implementing new or improved processes, companies can also lower production costs – a key element of competitiveness – by reducing the volume of inputs they require, such as energy or water, for example.

Clean technologies that offer more efficient use of water and energy resources and/or reduced greenhouse gas emissions
A general transparency about where food comes from and how it is made is important to many consumers today. This expectation includes sustainable production that is both local and socially conscious, but most importantly, is environmentally responsible.

There is a need for clean technologies in food and beverage processing businesses that can lower the industry's environmental footprint by reducing greenhouse gas emissions, using fewer energy resources, and making more efficient use of available water supplies. For example, a reduction in wasteful processes through implementation of a clean technology solution can decrease water use and improve water quality.

Reduced packaging and/or expanded application of biodegradable packaging or fully recyclable packaging
Engineering packaging to reduce the amount of material used, increase consumer convenience, and extend shelf life are all factors that contribute to sustainable production. In order to achieve the circular economy, future packaging will need to be fully recyclable or compostable. Not only does this kind of innovation lessen the sector's environmental impact and boost its sustainability, but better management of packaging can also contribute to cost containment (using less, using alternate ingredients etc.) and reduced food waste.

As well, innovative smart packaging technologies can indicate improper conditions during distribution and active packaging can incorporate technology to reduce microbial growth. Innovative packaging can provide additional benefits like extended product shelf life, improved food safety and reduced loss through spoilage or breakage.

Value-added products and processes for market growth and global competitiveness

There was general consensus amongst forum participants across Canada that there should be a greater emphasis on development of value-added products instead of simply selling commodities or primary processed products, whether to domestic or global markets. Achieving this differentiation through innovation will benefit farmers and consumers, but particularly also contribute to the growth and competitiveness of food and beverage processors. The real growth opportunity is to take a value-added product innovation introduced into the Canadian market and supply it to upscale consumers in global markets.

The changing global trade environment – Brexit, the Trans Pacific Partnership and the Comprehensive Economic Trade Agreement with European Union, for example – present new market opportunities for Canadian products in international markets. The Canadian brand is well thought of at home and abroad, so promoting "grown by " or "processed by" Canada is an opportunity for both domestic and export markets.

Developing innovative products utilizing commodity ingredients (e.g. dairy, pulses, grains, produce) with a focus on those grown or produced in Canada

Participants expressed a need for more supply of and access to commodities and ingredients produced locally or at least in Canada. Many speciality ingredients required for niche market food products are not available in Canada and must be sourced from the United States. Food processors expressed their preference to buy in Canada due to the reliability of and ready access to the supply. Shorter supply lines can also lead to lower transportation costs and the risk of delays at the border is eliminated.

Recovering greater value from waste streams and coproducts

Along with reducing the amount of waste generated overall, the possibility of being able to turn waste into viable by-products that could generate value was also identified as an innovation opportunity. Whey as a by-product of cheese production, for example, can be used by farmers as livestock feed but could also be turned into a value-added co-product with proper innovation. Waste management is a significant cost for many food and beverage processors so not only could that expenditure be reduced, it could potentially be redirected into a revenue generating venture. An example of a Canadian success story is Canadian Coffee's compostable coffee pods, where part of the container is made from recycled coffee bean waste.

Extending the value of food ingredients through non-food applications

Most agricultural commodities are intended for human food or animal feed end uses. However, there are components and derivatives that often have potential non-food applications. Examples are bioindustrial products like environmentally friendly lubricants and oils, automotive parts, and paints that are manufactured from plant-based renewable inputs rather than petroleum. More advanced innovation could find non-food applications for specific product components, like protein, collagen, and targeted biocompounds that can be extracted for high-value specific end use markets such as cosmetics or pharmaceuticals.

Other roles for CFI

In addition to identifying priorities that can be directly addressed through research and innovation, forum participants across the country also expressed how they need support for driving research and innovation in their enterprises.

Asset mapping and building awareness

A common theme across all forum events was lack of awareness of the resources and expertise already in place in the food and beverage processing sector across Canada. CFI has an opportunity to play a leading role in the initial development and ongoing maintenance and improvement of a national asset map, as well as raising awareness of the asset inventory. Cataloguing an accessible inventory of food and beverage processing projects undertaken in Canada is one step to increasing awareness and making the results of publicly funded food and beverage processing research more widely known.

The success of offering an accessible, online database of research resources and project results depends on keeping it up to date and making it widely known to the food and beverage community in Canada so that it is used extensively.

Collaboration and networking

Clearly there is a need for greater collaboration and networking in the sector. Canada's food and beverage processors tend to be in one silo and university and tech centre researchers in another. There is a need to break down these silos and increase the frequency and quality of exchanges among academic and public researchers and with processors and merchandisers in the innovation space. However, it is also clear that a prerequisite for collaboration is that companies must first be connected through a well-functioning ecosystem. In this context, they must be connected to the asset map identified previously. More importantly, Canadian food and beverage companies need new support systems for connecting to each other in a way that will create relationships that will lead to collaborative R&D projects and innovative outcomes.

Forum participants across the country cited a greater need to build collaboration among stakeholders with common needs to boost efficiency and make available resources go further. Suggestions include:

- Annual national innovation event led by CFI that gives Canada's food innovators a reason to participate and come together, offering opportunity to learn, be inspired, and to network.
- CFI-led innovation roundtables convened for a specific target group in the same subsector or region to enable networking, idea-sharing and convergent thinking around solutions that could be pursued collaboratively. A key to the roundtable concept is to enable cross-fertilization between food business minds bringing market and consumer insights on the one hand, and inter-disciplinary science and engineering minds on the other.
- Regular web-based learning opportunities around key topic areas common to all types of food and beverage processors (e.g. labelling, packaging, HR, funding opportunities etc.). This focus could provide a platform for more regular interaction beyond the annual face-to-face event. A What's App group, administered by CFI, could complement this connectivity, offering on-going, instant communication in the sector.
- Expanding beyond the food processing community, CFI could arrange sessions to learn best practices from other economic clusters and could reach out beyond Canadian borders to identify and connect with food start-ups in other countries to recruit them for Canada's food and beverage ecosystem

Representing industry to government

Beyond the role of facilitating collaboration within the sector, it was clear that industry and the research community supports the emerging role that CFI plays as the lead agency to represent Canada's food and beverage processing industry in policy and program discussions with federal and provincial governments on matters relating to R&D and innovation.

Through its relationship with provincial food and beverage processing associations, CFI has access to over 2,000 Canadian owned companies in the industry and has connections to research facilities in all regions of Canada. This network, along with CFI's singular purpose to drive innovation within the Canadian industry, enables CFI to be a key player in supporting economic prosperity for Canada through this vital industry.

CFI has a challenge in implementing solutions to the needs that forum participations identified. The challenge is limited resources. To undertake an expanded range of activities, there is seed capital needed for development of relevant products and services and a means must be developed in step to monetize the value delivered in order for the products and services to be sustainable.

Appendix
Environmental scan – food processing innovation research

Brezina Consulting was retained by CFI to complete an environmental scan of food processing innovation research.

Introduction

An environmental scan of recent research on innovation practices in the food and beverage processing industry was conducted. Several key reports were undertaken over the past couple of years and are summarized below. The scan also included a 2014 report by KPMG on automation in the food and beverage industry owing to the depth of the research and it's relevance to innovation in this sector. It was anticipated that more research on innovation practices in food and beverage processing would be located. However, it appears that there has been limited research on the subject of innovation practices in the food and beverage sector.

The recent federal budget and the Advisory Council on Economic Growth reports were also reviewed and summarized, as the reports provided very valuable information on innovation practices, and the budget document provided clear indication of federal government intentions. Several reports relating to the fish and seafood sectors were included as they provided valuable information on that specific sector as well as reinforcing findings from other food and beverage sectors, and could also provide additional opportunities for research. In addition to research reports and presentations, several articles surfaced in the trade literature and general media which were timely and relevant. Although these articles aren't supported by direct research, they are generally written by or reference industry experts and contribute to an understanding of innovation in this sector. A number of additional reports were reviewed but provided limited information.

Generally conclusions and recommendations were taken directly from the research with some interpretation of what was relevant to 'innovation'.

Summary of key reports

TITLE	SPONSOR	AUTHOR	DATE	FOCUS
Canada Budget 2017	Government of Canada	Ministry of Finance	22-Mar-17	Selected innovation and ag/ food references: pp 75-111

Conclusions relating to food and beverage innovation

- Establishment of Innovation Canada led by ISED
- Innovation Canada will develop six Economic Strategy Tables to identify innovation opportunities in key sectors including agri-food
- Establishment of "superclusters" to accelerate innovation. Agri-food is mentioned.
- Creation of a new strategic innovation fund - agri-food not mentioned here but is referenced elsewhere.
- Growing the Economy through Agri-Food Innovation: improving access to support for agri-food value-added processors through the new Strategic innovation Fund
- Developing the Next Agricultural Policy Framework: Advancing Agricultural Science and Innovation. The government is proposing to invest $70 Million over six years..."to further support agricultural discovery science and innovation, with a focus on addressing emerging priorities such as climate change and soil and water conservation"

TITLE	SPONSOR	AUTHOR	DATE	FOCUS
Unlocking Innovation to Drive Scale and Growth	Department of Finance	Advisory Council on Economic Growth; Chair: Dominic Barton	06-Feb-17	Innovation Policy - All Sectors

Conclusions relating to food and beverage innovation

This report focused on innovation in general and makes the following recommendations – Five Interventions to boost Canada's innovation agenda:

1) Catalyze the formation of business-led "innovation marketplaces" in sectors…
2) Create additional pools of growth capital to ensure promising companies have sufficient capital to scale up….
3) Modify our government procurement policy to incorporate strategic procurement and innovation…
4) Review and rationalize government innovation programs… Review regulatory barriers
5) Expedite entry for top talent through immigration policy…

The report also notes that improved collaboration among research, government and academia is required. (Canada's ranking on business-university R&D collaboration declined to 19th place in 2015).

TITLE	SPONSOR	AUTHOR	DATE	FOCUS
Unleashing the Growth Potential of Key Sectors	Department of Finance	Advisory Council on Economic Growth; Chair: Dominic Barton	06-Feb-17	Key Sectors: Selected Ag- Food references

Conclusions relating to food and beverage innovation

- Take policy actions that remove obstacles and seize opportunities for a few key sectors including Agriculture and Food (AgFood)
- The report recommends sector development strategies for a small number of high-potential sectors, in which AgFood is included. Specifically, the report recommends launching an AgFood pilot.
- It also recommends the development of an innovation marketplace in which the key stakeholders participate in the innovation value chain. Specifically, it states: "Encourage the development of a private-sector led Innovation Marketplace centred on raising AgFood productivity by connecting start-ups with established companies across the country, drawing commercial concepts out of university research centres, and providing initial funding to help offset the risk of pilot projects."
- To support commercialization, it recommends the implementation of a patent-box regime (preferential taxation rate for patent revenues) to accelerate the commercialization of Canadian intellectual property, and using federal procurement to support technologies.
- It also recommends capitalizing on "big data through the development of a data strategy for the AgFood sector to securely collect agronomic and economic data to enhance yield, productivity, transparency and traceability."

TITLE	SPONSOR	AUTHOR	DATE	FOCUS
Inventory of Innovation Landscape - Building a Culture of Innovation in the Canadian Food Industry	AAFC	Gary L. Fread & Associates	2017; not released	F&B Innovation - culture

Conclusions relating to food and beverage innovation

This report uniquely focuses on the cultural barriers and drivers of innovation in the food industry. Key findings include:

1) No process to identify pre-competitive research themes and collaborate on precompetitive projects
2) Disjointed "innovation system" and lack of collaboration and co-ordination
    - lack of incentives for academics to collaborate on R&D work with industry
    - No venue for industry and other innovation org's to communicate, network, launch innovation projects
    - Leadership is needed; precompetitive process, communication and networking, single window approach

TITLE	SPONSOR	AUTHOR	DATE	FOCUS
Evaluation of Canada's Innovation Capacity in the Food and Beverage Processing Industry	ISED	KPMG	2016	Innovation Capacity in Food and Beverage in Canada

Conclusions relating to food and beverage innovation

This report has not been released, but ISED has presented highlights at a conference. Key findings include:

1) Large number of SMEs create unique set of strengths, weaknesses, and challenges in pursuing innovation and building innovation capacity.
2) Wide range of services and expertise supporting innovation capacity exists; but formal and systematic connections with each other are lacking.

Solution pathways:

Key theme: Importance of connectivity between innovation capacity stakeholders in order to increase innovation capacity. Increasing connectivity, information sharing and dialogue between innovation capacity stakeholders is a key first-step

- Opportunity 1: Developing connections within clusters (BC, Prairies, ON, QC, Atlantic)
- Opportunity 2: Developing connections between clusters
- Opportunity 3: Strengthening unique innovation value chains for SMEs & large companies

TITLE	SPONSOR	AUTHOR	DATE	FOCUS
Mapping of the Innovation Assets in the Fish and Seafood Processing Industry - Atlantic Provinces and Quebec	ISED	KPMG	Nov-16	Identification and mapping of innovation assets supporting Fish and seafood processing industry in Atlantic Canada and Quebec

Conclusions relating to food and beverage innovation

Challenges

- Regulatory challenges
- Availability of funding and other financial challenges
- Low level of automation
- Collaboration challenges
- Human resources challenges
- Equipment challenges
- Gap in certain types of innovation
- Geographical challenges
- Business practice challenges

Opportunities

- Demand-led growth for fish and seafood protein
- Growing demand for natural health products & functional food
- Stock improvement – Certain species
- Growth potential – Canada's aquaculture industry
- Demand for non-traditional bio marine resources

TITLE	SPONSOR	AUTHOR	DATE	FOCUS
Technology Readiness Assessment of Fish and Seafood Processing Industry	ISED	KPMG	15-Nov-16	Automation and Robotics Technology

Conclusions relating to food and beverage innovation

Canadian fish and seafood processing is mostly manual: automation and robotics could be adopted. Challenges with automation include: cost of automation, seasonality, and automation needs to be unique to the application.

Solutions

1) Fostering Collaboration and Partnerships
2) Provide Support for Skilled Labour Training
3) Supporting Investments in Automation and Robotics
4) Consider Legislative Impacts - inhibitors and enablers to consolidation and integration of companies

TITLE	SPONSOR	AUTHOR	DATE	FOCUS
Technology Readiness Assessment of Automation and Robotics in the Food and Beverage Processing Sector in Canada	ISED	KPMG	Aug-14	Automation and Robotics Technology

Conclusions relating to food and beverage innovation

- Food and beverage industry only partially automated; meat, fish, seafood less automated
- Very automated firms were generally larger scale, or international subsidiaries, or public companies
- Canadian food and beverage lags Europe and U.S. in automation
- Meat, fish and seafood ranked automation most important but had the largest gap
  - lack of solutions directly applicable to processing activities
  - automation requires high degree of customization for these subsectors

Solution pathways:

1) Target the applications to automate
2) Build collaboration between industry, academia and government
   - bring together universities, knowledge institutes, integrators, testing centres, equipment builders
   - improve access to information and support
   - promote greater communication, information and expertise sharing among industry, academia and government
   - promote public-private partnerships to drive R&D and innovation, including the need for a facilitator
3) Attract foreign investment

Discussion

Several themes are emerging from the review of the various studies. First, there is a continued call for more collaboration, in particular with the innovation stakeholders including academia and knowledge institutions. This was repeated in several studies, and in particular the KPMG innovation capacity report spells out the need for connectivity within and between clusters.

Several studies commented on the fragmented nature of innovation resources, and the corresponding lack of awareness among food processors and difficulty in accessing them.

Another theme that emerges is the lack of, and need to develop and apply automation technologies. While many automation technologies exist, there is a need for research and development in difficult applications.

Studies were also conducted in the fish and seafood sector, the findings from which were strikingly similar to other food and beverage sectors, and in particular to the meat sector.

The Fread study for AAFC, which is not yet completed, dives deeper, into the behavioural aspects driving or preventing innovation in this sector. The importance of this work cannot be overstated. In spite of all the challenges and barriers to innovation listed in all of the studies, there are deeper, underlying behavioural reasons for the lack of innovation which must be addressed by leadership in the industry itself.

All of these findings really support the need for more demonstration projects. This would develop a better model for industry-academia collaboration, and demonstrate the benefits of undertaking innovation research. These demonstration projects need to be well publicized within the industry to raise awareness and encourage further uptake.

Conclusion

A review of the literature revealed consistency from study to study on several key themes, including the need for collaboration, need for automation and lack of awareness/difficulty in accessing innovation assets. There is a need for government to develop supporting policy as well as for industry leadership.

There is much interest from governments in supporting innovation in the food and beverage sector as described in Advisory Council on Economic Growth report. As a result of the public profile of this work, there will be pressure to act. This creates a unique opportunity for existing organizations with experience in managing research in food and beverage innovation.

Recommendations

The environmental scan prepared for Canadian Food Innovators focused on the most recent studies of innovation in Canada's food and beverage processing sector. Gaps and opportunities identified in this environmental scan, supported by the author's extensive experience in the food and beverage processing industry and in leading *Food and Beverage Ontario's* Innovation Program, have led to the following recommendations to CFI.

Recommendations are grouped into three sections: 1) further research that could be considered 2) foundational and systemic changes and 3) immediate situational actions.

The environmental scan revealed a number of gaps in understanding innovation practices. Recent research generally did not probe deeply enough into individual and corporate behaviours and motivations that enable, or, as the case may be, inhibit investment in innovation.

The environmental scan also identified the need to begin to tackle systemic issues. More study and analysis of these issues are needed. The kind of changes that are needed require sustained effort over a longer term to achieve – they are not quick fixes.

The current national focus on innovation, supported by the 2017 Federal Budget includes substantial federal program investment to support innovation in priority sectors. Agriculture and food is one of the key priority sectors. Given the scale of initiatives like super-clusters, they will take time to show results from specific research and innovation activities. The results will be measured by the benefits they represent for industry and the level of economic growth to which they have contributed.

There are opportunities for innovation that can be acted on with greater immediacy and which will lead to results in a shorter time frame. Several recommendations build on these kinds of situational opportunities that can be initiated quickly.

1. Further Research

These recommendations relate specifically to addressing gaps in understanding why innovation in Canada's food and beverage processing sector is not more widely undertaken.

1.1. Conduct a comprehensive survey of industry and academia to determine underlying behavioural aspects and organizational drivers that inhibit more intense collaboration between them. The practical goal of this research is to determine why industry is not more fully accessing the research capacity that governments at the provincial and federal levels have invested in, both directly through research facilities they fund and indirectly through university and community colleges.

- Many studies and consultations have asked higher level questions such as "what are barriers, etc." but only an extensive survey of individuals with responsibility for R&D in food and beverage processing firms and responsibility for research at academic institutions will lead to a better understanding of the root causes inhibiting this collaboration. Identification of these factors will lead to actions which can systemically and culturally shift individual and organizational practices. The survey needs to be designed by and carried out by one or more interviewers who are knowledgeable in food processing and able to probe the behaviours in an interactive, one-on-one confidential format.
- The process of taking discovery from laboratory scale to commercial introduction needs to be better understood in a Canadian context with Canada's high level of ownership concentration relative to the US, among grocery retail and food service companies. What are the opportunities for obtaining intellectual property protection for discoveries, for example, what do they cost, and what level of protection do they afford?

1.2. Conduct a study on how food research and development decisions are undertaken by industry. This analysis will include where the ideas for food development originate within the enterprise, who does the work and from whose budget it is funded, what portions are done internally and externally, how it is managed, what level of resources are applied and what physical research capabilities are out-sourced and why, what research capacity is needed that is not readily available in Canada, and how innovation is introduced to the marketplace.

- In addition to this needs analysis study, it could also examine the human resources component of innovation and assess the extent to which people with the right skill sets are available in the Canadian labour market to meet these needs. A very vital and essential question, however, is not just the supply of personnel with the right skill sets but whether there is a demand for those skills such that they would actually find permanent employment as a core part of Canada's food processing management teams.

2. Foundational systemic changes

2.1. Conduct a study into how effectively the research systems and practices of third party research providers (universities, colleges, technology centres, equipment and input suppliers, product development consultants) are meeting the current needs of the food and beverage processing industry and the ability of researcher providers to respond to how those needs might change in the next ten years.

- The study would identify successful practices, systemic gaps and opportunities. It would include articulating the needs of industry and of academia, and the roles of research providers.
- The analysis should include international benchmarking specific to the food and beverage processing industry in which the level of R&D investment by companies and the level of research investment by governments in academic institutions is compared. The form of government research investment could also be benchmarked and how decisions are taken as to what research to fund with public dollars. The Netherlands is often cited as an excellent example with its success with its Food Valley and it would be one important international jurisdiction to consider.

2.2. Investigate opportunities for government and industry to set sector mutual goals and priorities as they relate to research in food and beverage processing.

2.3. Expand the dialogue with the grocery retail sector in Canada in order to create a better understanding of ways to support the necessary investments in food and beverage processing research. Goals include lowering the risk of failure and improving the returns for all concerned as well as increasing the generation of promising ideas for innovation and seeding initiatives.

3. Immediate Situational Actions

3.1. Raise the profile of food processing research conducted in collaboration with industry through continuing demonstration projects, supported with expanded resources for communication and outreach to industry.

3.2. Conduct demonstration projects which develop and apply automation technologies for food and beverage processing with a goal of increasing the Canadian-engineered equipment design and manufacturing.

3.3. Conduct demonstration projects of precompetitive research.

- Precompetitive demonstration opportunities in an area like food safety research need to be identified and set up as projects. The funding would include the necessary facilitation to bring and keep the partners together.

3.4. Connect the R&D community in Canada with the research institutions.

- There is a an opportunity to follow the national consultations on food and beverage research and innovation held by CFI, and also by the Food Processing Industry Roundtable, by working to connect industry and research providers. This connectivity could be initiated by funding staff to develop communication products and to organize and lead a series of networking events over the next year. This pilot initiative will generate results that can be measured and expanded over time.

3.5. Raise awareness among industry of innovation resources in Canada in order to increase access and utilization by food enterprises.

- There is opportunity to raise awareness of and better explain the capabilities of program resources and research providers in Canada. This effort to provide match-making among industry needs, research provider capacity, and program resources could, as an example, lead to a software platform that allowed a firm to specify its needs and then search an up-to-date database to identify potential alignment. The key to this kind of on-line tool is to have sufficient resources to ensure that it is kept up to date and is comprehensive so that users have confidence in it.

Atlantic regional forum report

May 5, 2017

The first of the seven regional food and beverage innovation priority forum events was hosted by Canadian Food Innovators and the Atlantic Food Processors' Association in Halifax on May 5, 2017. The event attracted 34 participants, including seven from processing, nine from academic institutions, eight from industry, seven from government, one from CFI and the two member facilitation team.

For the purposes of this report, processing means food processing businesses, industry includes innovation and food processing-related businesses and organizations, government includes federal and provincial representatives, and academic institutions encompasses universities and colleges.

Research and innovation opportunities and barriers

In a ranking exercise following an in-depth discussion, participants were asked to identify their leading opportunities and barriers as well as select a single idea in each category as their top choice if they could only choose one (called the "kingmaker") that was worth two votes.

Opportunities:

New types of food – 22 points (14 regular votes, 4 kingmaker votes)
Participants see a significant opportunity for research and innovation to contribute to the development of new food products. These new products – whether improving existing ones or developing new ones in response to market demand or opportunity – are seen as significant contributors to company growth. The opportunity to differentiate through innovation was mentioned frequently, particularly for companies whose product is commoditized or who have a stagnant portfolio. This includes products with reduced sugar or salt levels, for example, as well as functional and value-added food products.

Growth strategy – 19 points (17 regular votes, 1 kingmaker vote)
Research and innovation was seen by a large number of participants as part of an overall corporate growth strategy for food and beverage processing businesses. There's a belief that innovation is a key ingredient in a company's ability to grow, and can play a leading role in gaining new markets, and reducing waste. A culture of innovation can also be important in attracting and retaining human resources.

Technology (changes) – 17 points (15 regular votes, 1 kingmaker vote)
Technological advances were seen as a strong driver of innovation and in opening up avenues for companies to improve processes, solve problems or overcome hurdles related to production or products, improve mechanization and automation, boost food safety and overall, drive profitability. It was pointed out, however that the costs of such technologies can also present a barrier.

Consumer demand – 15 points (13 regular votes, 1 kingmaker vote)
Meeting the ever-changing needs and wants of the consumer presents both a barrier (being forced to keep up to changes) and an opportunity, such as new products with functional or health attributes (probiotics, antioxidants, reduced sodium and sugar), differentiation based on quality, safety or other measures of confidence etc. However, consumer perceptions of modern food innovations like genetically modified organisms or CRISPR technology can be a barrier and present additional costs and hurdles for a company to overcome ("People want to eat like the 1800s but live like the 21st century").

Other opportunities mentioned in discussion included ecommerce, government regulations, human health, improving profitability, packaging development (reducing waste and cost, improving shelf life), and sustainability and corporate social responsibility.

Barriers:

Lack of awareness – 29 points (19 regular votes, 5 kingmaker votes)
There are many different organizations in Atlantic Canada involved in the research and innovation space in various ways, including providing tool and resources, access to funding and incubation space, and supporting research and commercialization activities. A common theme amongst almost participants was that it was hard to know who did what, what organizations existed, and what resources were available for access.

Cost of research – 21 points (17 regular votes, 2 kingmaker votes)
There was general consensus that undertaking research and innovation activities in food and beverage processing environments is costly - and that these expenses were often beyond the means of small and medium sized enterprises. Grant opportunities were considered helpful but participants cited difficulties in knowing what the opportunities were and complicated application and reporting processes as hindering participating in funding programs.

Talent – 14 points (12 regular votes, 1 kingmaker vote)
Participants cited recruiting suitable labour as a barrier. Increased mechanization and automation of food processing facilities mean those employers require different skill sets today – e.g. electronics or robotics experience - than a decade or two ago. At the same time, employers report having trouble filling manual labour positions in their plants due to a general lack of interest in these types of jobs. Automation can solve some of those issues, but those solutions are expensive and are only cost effective in businesses of a certain scale. As well, automation must be species-specific as one size does not fit all (e.g. different fruits, vegetables or sea food species).

Regulations – 14 points (12 regular votes, 1 kingmaker vote)
Although some mentioned government regulations as a driver of innovation, it was more frequently cited as a barrier to being able to implement new technologies. Often, the regulatory framework is not designed to accommodate new food processing techniques or tools, keeping these from being implemented until regulations can be updated. With limited resources in the regulatory agencies, this can often take a long time, which is frustrating for industry. Also, concern was expressed that upcoming regulatory changes like carbon capture, labelling and food safety will create significant expense for the sector.

Other barriers mentioned in discussion included high retail listing fees, lack of relationship network between potential partners and funders, lack of mentors, risks and how to mitigate them, internal intellectual property and legal issues, interprovincial rules and trade barriers, lack of equity funds that support food processing, customer concentration due to the small number of major retailers in the sector, need for technology that doesn't exist yet, a limited consumer base both in Atlantic Canada and across the country as a whole, distribution challenges, tradition, and production volumes.

A concern was raised by several participants that grant funding programs are offered by different agencies at the federal, regional and provincial levels and that they are not necessarily coordinated. The issue is not so much the availability of funding, but having the funding available in forms that are easy to access and relevant to food and beverage processors' needs.

Research capacity

In Canada, there needs to be a greater focus on building linkages and relationships between academia, funding and incubator organizations, government and food and beverage processing businesses. There was consensus that there is plenty of capacity to do research as well as working with entrepreneurs in test and pilot settings, but overall, there is a lack of capacity in scale up to move entrepreneurs from pilot through to the final processing line suitable for the commercial marketplace.

In particular, a lack of capacity for commercial scale up and linking entrepreneurs with ideas to processors who may be looking for new products or have space on their line was highlighted, along with lack of funding support for processors who engage in these types of activities to offset some product and line costs, down time, and risks to business.

Experiences and recommendations concerning granting programs

Nobody at the session had any experience with CFI and few had any familiarity with the cluster. In general, most participants found the sheer volume of programs and opportunities overwhelming and hard to navigate. In particular Agriculture and Agri-Food Canada grants were mentioned as often being avoided due to the perception of red tape in the application and reporting processes.

Key recommendations:

- make programs simple and targeted
- reduce the volume of paperwork required
- broaden the parameters of what can be funded
- keep acronyms to a minimum
- adopt a customer service-focused, one-stop-shop approach to grant programs in Atlantic Canada through a searchable online database and a concierge-style agent who can direct companies to the right places

Focal points for innovation and key takeaways

Overall, Canada is not seen as a country with an innovation culture, compared to other nations globally. The Netherlands was cited as an example of focused food innovation widely supported with resources like innovation centres, incubators, commercialization services and network development to link people together. Frequent face-to-face meetings are common and freedom to fail is accepted.

To counter the lack of awareness, a searchable database of resources, players and funding opportunities was suggested, along with a one-stop concierge-style service to make it easy for people to know where and who to go to in order to access help.

Additional promotion of available resources is also needed, through outreach to different partners in the agri-food value chain, and better presence of food and beverage processing businesses at industry events.

Quebec regional forum report

May 10, 2017

The second of seven regional food and beverage innovation priority forum events was hosted by Canadian Food Innovators and Le Conseil de la transformation alimentaire du Québec (CTAQ) in Montreal on May 10, 2017. The event attracted 24 participants, including seven from processing, five from industry, five from government (federal, provincial), four from academia, and the three member facilitation team.

For the purposes of this report, processing means food processing businesses; industry includes innovation and food processing-related businesses and organizations; government includes federal, provincial and municipal representatives; and academic institutions encompasses post-secondary institutions like universities and colleges.

Research and innovation opportunities and barriers

In a ranking exercise following an in-depth discussion, participants were asked to identify their priority opportunities and barriers as well as select a single idea in each category as their top choice if they could only choose one (called the "kingmaker") priority.

Opportunities:

Consumer perceptions and trends – 13 points (7 regular votes, 3 kingmaker votes)
Changing demographics, such as an aging population and millennial consumers, are changing what consumers are asking for. Traditional products like liquid milk, for example, are in decline so there is potential for new niches and opportunities in response to this changing demand. However, speed is of the essence because trends can change quickly. Brand perception – what consumers think of products, how they are made, and where they come from – is also important.

Health and food safety – 11 points (5 regular votes, 3 kingmaker votes)
Food for health is a large opportunity, including nutrition, digestibility, safety, and functional ingredients. The clean label movement is driving towards products with fewer or no additives, as well as natural, clean, sustainable production and the reduction or replacement of ingredients with negative health implications, like salt or sugar.

Regulation and policy – 9 points (7 regular votes, 1 kingmaker vote)
Regulatory and policy changes are a driver of innovation, providing an opportunity to do things differently and improve products and processes. New regulations can result in new challenges and lead to innovation to overcome or address them.

Collaboration/networking – 9 points (9 regular votes, 0 kingmaker votes)
There is tremendous value in building networks and in collaborating on programs and processes. Food and beverage processing businesses currently do not have enough access into the global network of researchers, and building better, stronger linkages would be of benefit to the industry. Economic growth, competition and competitiveness of the sector are important – the supply chain network, including distribution, is a key part of this need.

Other opportunities receiving priority votes included technology to increase productivity; sustainability and corporate social responsibility; food security; profitability; automation; human resources and talent development; and economic drivers such as growth and competitiveness.

Barriers:

Gap between research and industry – 11 points (5 regular votes, 3 kingmaker votes)
The concept of the "two solitudes" was a dominant theme – research and industry work too independently from each other and are not as linked as they should be. The partnerships that do exist stem from personal efforts or relationships; the example mentioned was of a professor at Université Laval who uses his extensive global network to bring people together for innovative projects. Overall, there is not enough access to the global research network and industry doesn't know what expertise exists and where. In Canada, there is a lack of connectivity between industry and research centres and little awareness of resources. An asset map that includes resources and expertise was suggested as a starting point in bringing academia and industry closer together.

Commercial validation – 10 points (8 regular votes, 1 kingmaker vote)
There are a lack of opportunities for cost-effective commercial validation of new products. Listing fees are high at retail to get a new product onto store shelves, so being able to validate the success of a new product in advance, such as through consumer testing facilities or experimental stores, to get customer feedback would be a tremendous benefit. Currently this high cost of entry for a new product is a roadblock in the flow of innovation – companies have new ideas but need to know whether they would also be marketable and whether customers would be willing to pay for them. Funding for this step in the research and innovation process is lacking.

Other barriers receiving priority votes included communication and access to networks and intellectual property.

Research capacity

In food and beverage processing, small and medium size enterprises (SMEs) do not have the resources to pay for research or for a staff person to be responsible for research and innovation. Often, their R&D challenges can be greater than those faced by larger, more established food and beverage companies, so it is important to link research capacity with this part of the industry. Often, SMEs do not know who might be able to help them, so it is up to the research community to reach out and explain how innovation might help advance their business. At Université Laval, for example, 57 per cent of the research income stems from SMEs largely because Laval makes proactive efforts to reach out to them.

A stronger innovation culture is needed within companies that can foster both smaller projects that contribute to incremental change, as well as large "breakthrough" initiatives. This can help show SMEs that innovation is not just for large multinational companies.

In Canada, the sector struggles with a lack of available ingredients, including equipment and tools as well as actual food ingredients.

Experiences and recommendations concerning granting programs

Timing was an issue in the first CFI cluster. The time to prepare project applications was very short but it took a long time to get approval back, which impacted the launch and execution of research projects.

More flexibility should be allowed for companies whose internal financial timelines differ from those of the federal government. Federal guidelines regarding expenditures mean funds can't always be used as efficiently as possible – for example, the requirement is to have 85 per cent of the yearly allocation spent by January in advance of the March 31 federal fiscal year-end, but this is a challenge when project approval was delayed until September instead of coming in April as originally intended.

The suggestion was made to ask for four instead of five year CFI cluster projects with six months built in both at the beginning and at the end for administration, including approvals, preparing for project launch and proper and thorough wrap up at the end.

There should be more than one intake period so companies can bring projects forward more than once every five years. To facilitate this, perhaps smaller cost-share amounts could be considered so there are funds for more companies to participate. Alternatively, two envelopes of funding were suggested: one larger one for multi-year initiatives and a smaller one that is more flexible for shorter term projects.

There was general consensus that access to funding should be simplified.

Focal points for innovation and key takeaways

Overall, big opportunities for industry lie in the ability to identify problems and to use innovation to develop solutions that can positively change the way things are done in food and beverage processing businesses. This approach can be applied to address anything from developing new food products or improving existing products to using technology to improve productivity. The most successful projects have always been the ones in response to a concrete problem.
In Canada, there is a lack of connectivity between industry and research centres and little awareness of resources. An asset map that includes resources and expertise was suggested as a starting point in bringing academia and industry closer together.

There is a difference between "breakthrough" research for large innovation and incremental research that supports adaptation. We see many "adaptation" projects that may nudge an industry forward gradually but there is a lack of leadership in Canada to help bring about game changing breakthroughs. This breakthrough kind of initiative requires a true culture of innovation at the company level.

Saskatchewan regional forum report

May 12, 2017

The third of seven regional food and beverage innovation priority forum events was hosted by Canadian Food Innovators and the Saskatchewan Food and Ingredient Processors' Association (SFIPA) in Saskatoon on May 12, 2017. The event attracted 19 participants, including eight from processing, six from industry, one from government (provincial), one from academia, one from CFI, and the two member facilitation team.

For the purposes of this report, processing means food processing businesses; industry includes innovation and food processing-related businesses and organizations; government includes federal, provincial and municipal representatives; and academic institutions encompasses post-secondary institutions like universities and colleges.

Research and innovation opportunities and barriers

In a ranking exercise following an in-depth discussion, participants were asked to identify their priority opportunities and barriers as well as select a single idea in each category as their top choice if they could only choose one (called the "kingmaker") priority.

Opportunities:

Marketplace, demographics and consumer trends – 11 points (11 regular votes, 0 kingmaker votes)
There is a need to create additional value from the market place, such as indulgence foods and tasty convenience products. Consumer attitudes and demands driven by changing demographics provide significant opportunities for more sustainable production, plant protein-based products and ingredients, and different textures and flavours desired by ethnic communities. Conflicting science impacts consumer confidence, so how food producers talk to consumers about where food comes from and how it is produced is important.

Health and wellness – 9 points (7 regular votes, 1 kingmaker vote)
Healthy eating and government regulations mandating healthier food are seen as a big driver of innovation in Canada and globally. Reducing ingredients like salt or sugar through substitution or reformulation presents significant opportunity to the sector.

"People still want to eat bad but want to do it guilt-free."

New technologies – 9 points (7 regular votes, 1 kingmaker vote)
New food products can be developed in response to consumer demands and regulatory changes. As well, new technologies in processing and packaging, including robotics and green technologies, can boost efficiencies in production processes.

Collaboration – 8 points (6 regular votes, 1 kingmaker vote)
There is a good network at the provincial level in Saskatchewan that is continually growing. Face to face communication is important to help stimulate research and knowledge transfer between academia and industry. A good database of resources and experts is a first step in knowing who should be connected to each other, although the challenge is to keep this information current. Collaboration and network development was suggested as a potential role for CFI.

Other opportunities receiving priority votes included food safety, sustainability and corporate social responsibility, human resources, regulations, media and direct-to-consumer opportunities.

Barriers:

Funding – 24 points (20 regular votes, 2 kingmaker votes)
The lack of available funds or funds not directed to the right place is a large barrier for food and beverage processors. This is coupled with a lack of awareness of funding programs and expertise – industry doesn't know what programs are available. There is an opportunity for Canada to foster small companies, which are seen as the leading source of innovative new food products, but there is a shortage of available funding for early stage innovation through to the time that cash flow comes from product sales.

Getting from lab to market – 17 points (9 regular votes, 4 kingmaker votes)
An expensive step in getting a product from lab to market is proof of concept and demonstrating with scalable equipment that a product or innovation works in an industrial setting. Incubators are expensive and the few co-packers that exist in Western Canada lack extra capacity. The challenge is getting from pilot plant to market in a scalable, price conscious way that avoids "the innovation valley of death".

Federal government – 8 points (6 regular votes, 1 kingmaker vote)
Much of the federal and provincial government focus on export market development is around commodities instead of manufactured food products, and there is perceived little discussion on how to retain the value of those commodities in the Canadian business environment. Government bureaucracy and red tape are seen as impediments to collaboration, as are regulatory barriers, such as certification costs, new labelling requirements and a lack of regulatory enforcement on imported products.

Government departments and agencies like Innovation, Science and Economic Development Canada, Health Canada, Agriculture and Agri-Food Canada, and the Canadian Food Inspection Agency operate in silos, lack transparency, and are perceived to be unhelpful to food and beverage processors seeking assistance with anything from import permits to novel foods.

Openness to risk – 6 points (6 regular votes, 0 kingmaker votes)
Canada is seen as risk averse when it comes to financing research and development in the food industry, particularly for start-ups, and there are no angel investors or venture capital funds ready to invest. Food companies themselves are more comfortable expanding with what they already have than investing in riskier new ventures.

Other barriers receiving priority votes included regulations such as certification costs; non-tariff export barriers; Canadian regulations not enforced on imports; competition between provinces; retaining intellectual property when working with universities or Agriculture and Agri-Food Canada scientists; talent retention; and consumer perception and demand.

Also mentioned in the discussion but without any priority votes were trade, duplication of programs, and focus on cost reduction because that is the only way to stay listed with food retailers.

The pending legalization of cannabis was seen as a barrier; a strongly regulated new entry into the marketplace could pull other foods into new regulatory requirements, as well as new rules and costs for contamination testing.

Research capacity

There are a lot of resources and expertise in Canada that just need to be linked together. For example, there is a need for greater connectivity between industry and academia; however, participants caution against over-mandating too many partners for fear of making projects too complicated.

Often, equipment used in academic labs doesn't equal what is commercially used by industry, leading to projects built to suit existing equipment instead of what is best for the end result. Some equipment has a very short lifespan and is not being used to capacity, so pooling or leasing could be an option. The food and beverage processing sector lacks an asset map of resources and expertise.

The ongoing retirement wave may have impact on the availability of Highly Qualified Personnel, which could influence research capacity.

Experiences and recommendations concerning granting programs

The general feeling is that the industry is fairly well funded in Saskatchewan at the provincial level, although assistance for capital expenditures would result in more projects. Restrictions on where and how funding dollars can be spent are a significant concern.

Federally, the sector is underfunded for value-added initiatives. One example cited is Growing Forward 2, where the bulk of funding is allocated to business risk management for farmers and most strategic innovation funds are directed to commodity-driven research clusters. There is no link between specialty crop and value-added clusters like CFI, and the matching funding requirement stifles research from getting to market. Value-added research is often only funded during commodity downturns and it is up to those organizations to determine where funding is directed.

Turnaround time on funding applications should be quicker, and more than one intake period for the next CFI cluster would be of benefit to the industry.

CFI-specific questions for follow up:

- Is it possible to send out the proposal form along with the Letter of Intent? The level of detail that is required is good to know. A workshop through SFIPA about program details, eligibility etc. would be helpful.
- Are clinical trials eligible for CFI funding?
- Can CFI provide a budget template?

Focal points for innovation and key takeaways

Canada as a country has to rethink how it fuels innovation and moves commodities and resources to market. Overall, the country is fractured and lacks a national innovation approach. A cited example is individual provinces going to international events to promote themselves instead of a unified approach under a Canadian banner. This leads to too much internal competition between provinces. A cooperation culture such as that found in the Netherlands or Israel would help link the two solitudes of academia and industry.

In other countries, food centres are innovation intermediaries, but in Canada, food centres are the first to have their budgets cut when money becomes tight. Better investment in these centres would help support a more collaborative innovation culture.

Most research in Canada is very academic in nature and isn't being commercialized or even made available to industry for possible commercialization. More partnerships are needed between academia and industry.

Alberta regional forum report

May 16, 2017

The fourth of seven regional food and beverage innovation priority forum events was hosted by Canadian Food Innovators and the Alberta Food Processors' Association (AFPA) in Edmonton on May 16, 2017. The event attracted 32 participants, including 20 from processing, five from industry, three from government (federal, provincial), one from academia, one from CFI, and the two member facilitation team.

For the purposes of this report, processing means food processing businesses; industry includes innovation and food processing-related businesses and organizations; government includes federal, provincial and municipal representatives; and academic institutions encompasses post-secondary institutions like universities and colleges.

Research and innovation opportunities and barriers

In a ranking exercise following an in-depth discussion, participants were asked to identify their priority opportunities and barriers as well as select a single idea in each category as their top choice if they could only choose one (called the "kingmaker") priority.

Opportunities:

New products – 20 points (8 regular votes, 6 kingmaker votes)
New products are essential for companies with legacy brands to stay fresh in the marketplace. The consumer shift towards clean label products is driving innovative product development, such as less filler in sausages, for example. Consumers are more aware of what they are feeding themselves, their children and their animals, and with a smartphone, information is at their fingertips.

Consumer preferences – 19 points (19 regular votes, 0 kingmaker votes)
There is opportunity in shifting consumer preferences driven by changing demographics (ethnic populations, aging Boomers). Food with health benefits is becoming more popular, as is general transparency about where food comes from and how it is made. This includes sustainable production – focus on local, environmentally responsible and socially conscious. Access to Canadian non-GMO ingredients would benefit food and beverage processors.

Collaboration – 18 points (4 regular votes, 7 kingmaker votes)
Major change happens when customers, processors and the supply chain collaborate, but it is very difficult. Whether vertical or horizontal collaboration, unusual partnerships can bring good results – the example of a microbiologist working with an engineer to develop a faster diagnostic test was cited. Industry-driven super clusters, such as the smart agriculture cluster being started in Alberta, are meant to connect the value chain and bring different industries together.

Evolving market channels – 16 points (16 regular votes, 0 kingmaker votes)
E-commerce distribution channels are now a key part of the market options for companies of all sizes to reach customers. Due to retail concentration, a new focus is also put on trying to attract buyers from large chains to new products, instead of just targeting consumers directly.

Other opportunities receiving priority votes included differentiation; food safety; regulations; sustainability; preserving the nutrient value of food; lack of human resources driving automation; lean, green and clean technologies; and lowering input costs.

Also mentioned in discussion but without any priority votes were monetizing waste streams and traceability.

Barriers:

Access to capital – 19 points (11 regular votes, 4 kingmaker votes)
Accessing capital is a challenge on many levels. Internal product development work is not eligible for government grants, and some companies can be leery of letting outside consultants into a facility. Anyone entering an unproven segment of the industry – e.g. a new micro-distillery – will have problems with financial support as traditional lenders are risk averse. A backing program for commercial banks that would provide security but enable lower interest rates to food processing businesses was suggested.

Lack of support for innovation – 16 points (6 regular votes, 5 kingmaker votes)
There is a general lack of public and government support for innovation in Canada, especially when compared to other countries. According to Organization for Economic Co-operation and Development (OECD) statistics, Canada spent 1.6 percent of its GDP on research and development in 2014, compared to leaders - Israel at 4.3 percent, Korea at 4.2 per cent, Japan at 3.5 per cent and Sweden at 3.3 per cent expenditure in 2015.

Regulations – 11 points (11 regular votes, 0 kingmaker votes)
Regulatory support often lags for new innovations, such as functional foods, for example. There is a perception that government agencies lack an understanding of business or industry (particularly when it comes to cost and impact of new regulations), and that there is a lack of collaboration among departments and with industry. Food businesses who do reach out to make contact with government offices are referred to websites with no support to explain or interpret the information provided there. Companies don't take on smaller co-packing jobs due to prohibitive costs resulting from regulatory compliance. Regulations surrounding export market access are also perceived as a significant barrier, particularly for small companies – *"it's very expensive to get that first container out"*.

Too much paperwork – 10 points (10 regular votes, 0 kingmaker votes)
Funding programs in general are viewed as being too bureaucratic and cumbersome. The volume of paperwork required for applying to and subsequently reporting on grants is a barrier to many food and beverage processors.

Other barriers receiving priority votes included lack of connectivity between universities; retail/food service concentration; unavailability of ingredients in the supply chain; the food industry not having a political voice; facilitation between players; IP and legal issues; government silos; media stories that are negative towards the industry; new technology being difficult to finance; lack of trained manpower; exchange rates; consumers and their misinformation; companies with a mindset focused on tradition; and the costs associated with product certification and the numerous audits required by retailers.

Also mentioned in the discussion but without any priority votes were carbon taxes; small population base; supply management; research capacity and/or output not accessible; and training certifications.

Research capacity

There's a lack of development facilities that can produce enough product to meet scale and scope for trials, and those that do exist are at times surrounded by red tape. There is a good supply of specific subject experts, but an adaptable, versatile labour pool with broader skills is lacking – the example of PhD candidates with great theoretical knowledge but no food industry experience was mentioned.

There are few connections between researchers and food companies. Linking training institutes to business would be beneficial, with students working onsite at companies on short term projects – similar to internship or work experience programs. However, it can be a challenge to find enough work placements for students in the programs that do exist, such as the meat scientist program at University of Alberta.

There is a need to strengthen collaboration between researchers and industry, including a way for researchers to reach out to clientele that is relevant to their research. Often, publicly funded research is not commercially viable and results are not made available to industry. The Vineland Research and Innovation Centre was mentioned as an example of an operation where research is driven by industry instead of researchers. This approach is not happening in the food industry.

Centralized resources across Canada for the food industry from business plan development to research funding and an asset map of facilities, resources and expertise would foster more collaboration and facilitate research and innovation.

The food centre at Leduc is excellent for start-ups but the industry lacks support capacity for medium sized businesses looking to continue their growth – their needs are different than those of start-ups.

Experiences and recommendations concerning granting programs

There are so many programs that it makes is difficult to understand eligibility and criteria, leading larger firms to hire consultants to identify opportunities and write applications. Alberta has 27 provincial economic development officers, but it is felt that many lack high level skills and knowledge of the industry to make them a valuable resource for food and beverage processors.

Focal points for innovation and key takeaways

There's a general need for more strategic activity around innovation to create linkages across all provinces.

"We need a stronger spirit of collaboration"

Support is needed for research and innovation that drives incremental change (the gradual improvement in gluten-free food products over the last 15 years was mentioned as an example), not just for rapid, large-scale change that may not be practical for adoption by a lot of companies. This includes improving current processes to be lean, green, and clean – areas that offer plenty of opportunity for innovation and can have a direct impact on margin and profitability.

"Evolution vs. revolution"

Greater linkages between industry and academia, particularly universities, are paramount. There is a feeling that universities are irrelevant to food research in Canada, with very few significant food developments stemming from Canadian universities in the last decade.

Alberta Innovates completed an inventory of resources and expertise in the Alberta food sector last year and will share this information with CFI.

British Columbia regional forum report

May 17, 2017

The fifth of seven regional food and beverage innovation priority forum events was hosted by Canadian Food Innovators and the British Columbia Food Processors' Association (BCFPA) in Vancouver on May 17, 2017. The event attracted 22 participants, including 12 from processing, two from industry, three from government (municipal and provincial), two from academia, one from CFI, and the two member facilitation team.

For the purposes of this report, processing means food processing businesses; industry includes innovation and food processing-related businesses and organizations; government includes federal, provincial and municipal representatives; and academic institutions encompasses post-secondary institutions like universities and colleges.

Research and innovation opportunities and barriers

In a ranking exercise following an in-depth discussion, participants were asked to identify their leading opportunities and barriers as well as select a single idea in each category as their top choice if they could only choose one (called the "kingmaker").

Opportunities:

Food Innovation Centre – 23 points (13 regular votes, five kingmaker votes)
The single biggest opportunity identified by the group was the lack of a Food Innovation Centre in British Columbia, compared to other regions of Canada. Currently, British Columbians must travel to other provinces or the United States to access this type of service. Such a centre could connect science and business and serve as an innovation hub that could provide the industry with services from research and development to scale up, commercialization and adoption, particularly for start-ups and small and medium sized enterprises.

Canadian and local products – 8 points (4 regular votes, 2 kingmaker votes)
Participants expressed a need for locally (by general group consensus, local means BC) or at least Canadian produced commodities and ingredients. Many speciality ingredients – such as non-GMO corn or sugar beets, for example – are not available in Canada and must be sourced in the United States. Food processors would prefer to buy in Canada to avoid exchange rate and border challenges, and meet some programs' "buy Canadian" ingredient requirements.

Waste reduction and by-product use – 7 points (5 regular votes, 1 kingmaker vote)
Reducing the amount of waste generated was identified as an opportunity for innovation, as was being able to turn waste into viable by-products that could generate value. Whey as a by-product of cheese production, for example, can be given to farmers as livestock feed but could also be turned into a value-added by-product with proper innovation.

Controlling product adulteration or misrepresentation – 7 points (7 regular votes, 0 kingmaker votes)
Opportunities for preventing product fraud were identified as a great possibility for pre-competitive research in the sector. This includes preventing misidentification of ingredients and production of imitation or "knock-off" products that don't come with the traceability assurances, quality and standards the originals do. It was noted that many of these products originate from foreign countries.

Close behind in the voting were clean labels, plant-based products, and new financing models, which finished in a three-way tie immediately behind the top four.

Clean labels include reduction or replacement of specific ingredients – like sugar, trans fats, gluten, preservatives and additives – in response to allergies, health concerns or healthier lifestyles. Plant-based ingredients could serve growing vegetarian or vegan markets with the BC climate being suitable for growing many crops that other parts of Canada can't. New financing models like crowd funding or BC equity funding are emerging and could be opportunities for the food sector.

Other opportunities receiving priority votes included packaging, functional ingredients, regulations, automation, the next big trend or opportunity, a team approach for innovation through clusters especially for small companies or startups, need for innovation in certain sectors with limited product portfolios, bringing new products or products with small improvements to market, maintaining food nutritional integrity, and market research and awareness.

Also mentioned in discussion but without any priority votes were traceability, nutrient availability to the human body and the changing face of retail through ecommerce and home delivery. New opportunities presented by the pending legalization of cannabis were also mentioned several times during the day's discussion.

Barriers:

Co-packers and shared kitchens – 13 points (9 regular votes, 2 kingmaker votes)
A general infrastructure problem was identified, including lack of co-packers and shared kitchen facilities and a Food Innovation Centre. Facilities that do exist have minimum volume requirements or demand-driven capacity limitations; concerns around affordability were also highlighted. There is also a lack of knowledge about what facilities already exist and knowing who does what.

Funding – 11 points (9 regular votes, 1 kingmaker vote)
Lack of funding was a theme with many facets. It included lack of access to capital for food processors, no funding for the BCFPA or an organizational ecosystem to support innovation in food processing, and no funding for preparing grant applications or for equipment modification that might be required for specialized processing. Specific to government, it was felt that BC didn't have enough human resources at the government level dedicated to food and beverage processing; there was no integration of long-term funding, and a general lack of support for training and hubs.

Grant approvals – 8 points (8 regular votes, 0 kingmaker votes)
Frustration was expressed with the length of time applicants must wait before receiving a project proposal response from government. The timing of government program funding intakes does not match with food processing business cycles; an evergreen intake cycle instead of only one or two intakes every four or five years would be more helpful to the sector.

Automation – 8 points (6 regular votes, 1 kingmaker vote)
Automation, although a potential solution to a lack of labour, presents a barrier to companies who don't know where or how to source the best solutions for their needs, nor are they able to test equipment before they buy. Funding programs won't support travel to industry trade shows where the latest technology options are on display in one spot.

Emphasis on big companies over small – 8 points (8 regular votes, 0 kingmaker votes)
There is a perception that funding dollars are directed mainly at or more readily available to large food and beverage processors. A tiered approach based on company size could make grants more accessible – a 50-50 match is often not achievable for small companies, for example.

Close behind in the voting were the lack of skilled, affordable labour and a lack of collaboration by the agricultural sector. British Columbia struggles with a high cost of living, which impacts the competitiveness and profitability of food and beverage processors who must compete with other industries for talent recruitment and retention. Lack of training opportunities – such as specialized skills for cheese making, for example – are also part of the challenge of attracting people into the food industry.

Canada lacks a national food strategy and the linkages between agriculture and food processing that this would encourage. It was felt that the primary production sector does not collaborate enough with food processing and that funding programs place too much emphasis on agricultural production and agricultural commodity boards.

Other barriers receiving priority votes included government departments that work in silos, a lack of knowledge about where to go for help and/or information, lack of staff and long-term resources at the provincial government level, regulations, lack of expertise and funds for in-house R&D, lack of internship programs, and cost of production.

Also mentioned in discussion but without any priority votes were paperwork, equipment excluded from funding, not enough industry investment in R&D, retailer control, and intellectual property and legal issues.

Research capacity

The most significant research capacity gap identified was the lack of a Food Innovation Centre in BC, which includes research and development, pilot scale up, access to specialized equipment and commercialization support. A suggestion was made to consider partnering with equipment manufacturers to get equipment donated in exchange for the site being a live demonstration centre, "like a permanent trade show."

Support for a mission to a trade show by multiple companies together was suggested as a need, as well as having a wide variety of equipment on site or accessible through an innovation ecosystem like a Food Innovation Centre.

An asset inventory of resources and expertise in the BC food processing sector would be helpful accompanied by an outreach program to help people easily find out what is available and how to access it.

Companies could use access to market information like Nielsen data, research into different ingredients like colouring or preservatives, and health research to back up conflicting claims – is dairy healthy or not was one example mentioned.

The need for collaboration was a common thread across most of the capacity issues raised. BCFPA was suggested as a neutral body with administrative capacity that could coordinate collaboration in order for it to be most efficient.

Experiences and recommendations concerning granting programs

A lot of innovation-specific funding is dedicated to supporting major breakthroughs. However, many of the projects companies need support with are focused on incremental change to improve a product – "tinkering vs. large scale innovation".

Funding programs should include cover some funding of equipment or other capital expenditures, as well as travel to trade shows to source equipment. Program timelines are often really tight, decisions can take a long time, and it is difficult to access funding for needed expertise outside of Canada.

Government should make it simpler for the food industry to access SR&ED (Scientific Research and Experimental Development) tax credits, such as providing dedicated seminars for food businesses or a SR&ED starter kit for newcomers to the sector.

Focal points for innovation and key takeaways

British Columbia is an expensive place to do business, particularly due to shortages in available industrial land for plant facilities and a lack of skilled and affordable labour.

Food and beverage processing in BC is a low margin industry and the sector is not integrated, resulting in a lack of knowledge about available expertise and resources – programs, facilities, engineering and food technology experts etc.

A stronger innovation culture, such as in Denmark, is needed to encourage innovation, education and entrepreneurship, including the freedom to fail. Government ministries should work in a more integrated fashion following the Danish or Dutch models.

BCFPA could be a hub for a lot of this in BC, but an ecosystem of organizations is needed to support this nationally.

Ontario regional forum report

May 24, 2017

The sixth of seven regional food and beverage innovation priority forum events was hosted by Canadian Food Innovators and Food and Beverage Ontario in Guelph on May 24, 2017.

The event attracted 32 participants, including 10 from processing, four from industry, 11 from government (federal, provincial), three from academia, two from CFI and two facilitators. The processing participants included several from multi-national enterprises that do business globally.

For the purposes of this report, processing means food processing businesses; industry includes innovation and food processing-related businesses and organizations; government includes federal, provincial and municipal representatives; and academic institutions encompasses post-secondary institutions like universities and colleges.

Research and innovation opportunities and barriers

In a ranking exercise following an in-depth discussion, participants were asked to identify their priority opportunities and barriers as well as select a single idea in each category as their top choice if they could only choose one (called the "kingmaker") priority.

Opportunities:

Collaboration - 23 points (5 regular votes, 9 kingmaker votes)
There is a need to build a better environment for collaboration to enable partnerships focused on a common goal. One example identified is inter-commodity research – currently, commodities work in silos but more could be done to bring researchers together from different areas to collaborate. Greater collaboration could also have a positive impact on industry representation. The food and beverage sector is generally fragmented and better networks and partnerships could enable the industry to speak with a single voice on common issues, such as regulatory affairs, for example.

Food for health – 16 points (10 regular votes, 3 kingmaker votes)
Consumer trends and preference are changing away from historically nutrient deficient foods towards newer, more nutritionally dense foods. This shift provides opportunities for products with enhanced benefits, such as functional foods and beverages, as well as alternatives for people with allergies. Nutritional improvements in food products, such as fortification or reducing sugar or salt content, enable the industry to contribute to improved human health. It was mentioned that this focus should be coupled with the ability to give consumers accurate, science-based information and not "Facebook health" in order for these types of products to be accepted.

Waste reduction and by-product use – 15 points (15 regular votes, no kingmaker votes)
Better use of the processing by-products can provide opportunity for new revenue streams as well as reducing costs associated with waste management. From a sustainability perspective, a reduction in wasteful processes can decrease water use and improve water quality, for example. Reducing the amount of packaging used on food products could also contribute to cost containment, as well as opportunities for new packaging technologies (e.g. smart packaging that can indicate improper conditions during distribution and active packaging that incorporates technology to reduce microbial growth) that may have other benefits too, such as extended shelf life and improved food safety.

Processing, including shelf life and quality – 12 points (8 regular votes, 2 kingmaker votes)
There is considerable opportunity in changing or minimizing processing requirements to deliver "fresh" quality in shelf stable products. Increasing shelf life can help offset climate variables that provide either abundance or shortage of produce in any given year. Novel packaging can also help with shelf life extension, as can reformulating a product to have fewer ingredients but without compromising its performance characteristics. The clean label challenge is an opportunity that can be addressed through processing changes.

Other opportunities receiving priority votes included novel technologies, automation, more value added to commodities; clean labels; specialty markets including organic, non-GMO; consumers; sustainability and corporate social responsibility; changing supply management to reduce input costs for further processors; and food security.
Also mentioned in discussion but without any priority votes were leveraging existing R&D and data; globalization; climate change; and demographics.

Barriers:

Government – 12 points (12 regular votes, 0 kingmaker votes)
Government was identified as a significant barrier for food and beverage processing businesses. Growing Forward 2 was cited as a difficult program for companies to apply to, as well as to manage approved projects. It is felt that innovating in Canada is very expensive. This reality makes grant programs very important but the work and resources they take to manage are significant. Program information is not presented in a user-friendly way – the Scientific Research and Experimental Development (SRED) tax credit program was mentioned as one that does not suit the needs of the food and beverage industry which is why it isn't used – but then the industry is seen as not being innovative due to lack of claims under the program. Overall, government response times take too long, not just for project applications, but also if companies approach various government departments like the Canadian Food Inspection Agency for information or help. Government regulations need to keep current with changing technology in a timely fashion – many government departments work in silos.

Capital – 8 points (8 regular votes, 0 kingmaker votes)
Capital is hard to come by. Most funding programs like SRED, IRAP and others provide limited or minimal support towards capital assets such as laboratory and analytical equipment needed for R&D. Often innovation requires making investments in novel technologies and the more novel, the higher the risk, which keeps conventional lenders at bay. Grants are important to help mitigate these kinds of innovation risks. More awareness about how to access existing programs is needed. Collaboration was identified as an important way of providing shared access to equipment across different food processing businesses.

Lack of scale – 7 points (7 regular votes, 0 kingmaker votes)
The food and beverage processing environment in Canada is very competitive. Margins are limited in a consolidated industry so R&D is often the first item to be cut. Canada's geography is large but the population is small, limiting the scale needed to be more competitive.

Lack of communication/guidance – 6 points (4 regular votes, 1 kingmaker vote)
There is a lack of guidance and general advice on how to develop a research project or proposal to solve an industry problem. It would be beneficial if a solution to this need was included in any kind of industry network that develops, so that everybody could tap into common resources to stimulate and initiate collaboration. The industry already has a lot of infrastructure and resources but many aren't being used as well as they could be due to lack of awareness. Not only is there a separation between research and industry, but the processing sector as a whole is seen as one that is fragmented.

Other barriers receiving priority votes included industry perceived as lacking innovation, need for more grants and more awareness of granting programs, speed to market, commercialization, need to establish research priorities, concentration in the retail sector and the need to establish an asset map.

Also mentioned in discussion but without any priority votes were Canada's large geography, lack of consumer understanding, IP and legal issues, costs of production and paperwork.

CFI program discussion

An overview of the CFI program was presented. The Arrell Food Institute and the Bioproducts Discovery and Development Centre at the University of Guelph are portals into food and food industry-related packaging research at the University of Guelph. Agriculture and Agri-Food Canada has a team of researchers that can be tapped as resources as well.

In a CFI application, the principal investigator can be a company employee and does not have to be an external researcher. A company can put forward more than one project, although CFI is considering a funding allocation cap per company.

The CFI board will be considering Letters of Intent as an option.

More information will be posted on the CFI website as it becomes available.

Research capacity

Sector-based asset mapping was suggested as a way to gain a better understanding of what resources and expertise are available and what demand exists in the industry. CFI could serve as a gatekeeper although caution was expressed that resources are needed not only for development, but also for ongoing maintenance.

An R&D specific round table was suggested as an opportunity for CFI. Public sector resources are known, but there is less awareness of privately held resources. Companies would be willing share such information in this type of an environment, with the hope of helping build a new collaborative model that would let the sector be more innovative.

In addition, the representatives from the larger companies indicated they would be willing to invite people from other companies to view equipment and processes in their production plants if this equipment or technology development was part of a pre-competitive project.

A lack of a sustainable supply of researchers is impacting future research capacity. It can be difficult to recruit graduate students, for example, especially from Canada due to a lack of food industry related education opportunities. Working with the academic model can also be challenging as the academic calendar is not in sync with company cycles.

Pilot scale facilities that supported progressive scale up of production systems were also identified as a research capacity gap.

Focal points for innovation and key takeaways

The concept of a CFI-led roundtable on research and development was suggested several times as a sharing environment where people could speak freely and encourage collaboration.

Many associations and industries are willing to fund pre-competitive research, but a change in culture is needed to attract more investment into long-term, fundamental research. There is an opportunity to reverse the brain drain into the United States; perhaps CFI could play a leadership role in bringing companies and associations together.

Discussions around the need for commercialization and pilot facilities in Canada resulted in the conclusion that an asset inventory is needed to bridge the awareness gap. Many resources already exist that aren't being used to their full capacity largely because there is little awareness about them.

Manitoba regional forum report

May 30, 2017

The seventh of seven regional food and beverage innovation priority forum events was hosted by Canadian Food Innovators and Food and Beverage Manitoba in Winnipeg on May 30, 2017. The event attracted 32 participants, including 17 from processing, four from industry, five from government (provincial and federal), three from academia, one from CFI, and the two member facilitation team.

For the purposes of this report, processing means food processing businesses; industry includes innovation and food processing-related businesses and organizations; government includes federal, provincial and municipal representatives; and academic institutions encompasses post-secondary institutions like universities and colleges.

Research and innovation opportunities and barriers

In a ranking exercise following an in-depth discussion, participants were asked to identify their leading opportunities and barriers as well as select a single idea in each category as their top choice if they could only choose one (called the "kingmaker").

Opportunities:

New trends – 18 points (14 regular votes, 2 kingmaker votes)
Consumer-driven change is seen as a large opportunity for food and beverage processors. For example, the rise of vegan and vegetarian diets has given rise to new proteins, the clean label movement provides opportunities for new products or reformulating existing ones, and the connection between food and health has consumers looking for healthy indulgences. Immigration is driving demand for ethnic foods and more awareness of other cultures is behind the internationalization of the Canadian diet. Other trends, like social media and ecommerce, pose new ways of getting products to consumers, like mobile apps or selling through channels like Alibaba or Etsy.

Made in Canada – 15 points (11 regular votes, 2 kingmaker votes)
The Canadian brand is well thought of at home and abroad, so promoting "grown by " or "processed by" from Canada is an opportunity for both domestic and export markets. This includes promoting uniquely Canadian products, like Saskatoon berries that are high in antioxidants.

Interpreter/facilitator – 12 points (6 regular votes, 3 kingmaker votes)
Manitoba food and beverage processors see the need for an "interpreter" in their sector – someone who can come to business, identify what funding or other opportunities would be suitable to their enterprise and then helping with grant application and management. Processors, especially SMEs, do not have the time, resources or knowledge of available tools and programs to do these activities themselves. CFI could play a facilitating or catalyst role in such an activity. There is also a need for an asset map of database of resources, equipment, facilities and expertise.

Collaboration – 10 points (2 regular votes, 4 kingmaker votes)
Useful collaboration in a supportive ecosystem is important to helping companies, especially small and medium enterprises succeed. This includes connecting with the primary production end of the supply chain – it would be beneficial, for example, to link processing or food projects from commodity clusters with the CFI cluster. The sector would be stronger if it was able to work together more; some of this happens informally currently but more could be done to encourage collaboration. This could be a role for CFI.

Other opportunities receiving priority votes included cross-functional and cross-disciplinary work; reformatting or reformulating existing products; creating an asset map; research and development on equipment; certification; co-production and waste reduction through by-product utilization; sustainability and corporate social responsibility; ecommerce and new market opportunities created by the digital revolution; novel ingredients; changes in processed foods; non-food applications of food ingredients; and connecting with primary production.

Also mentioned in discussion but without any priority votes were startups; energy efficiency; environmental sustainability; food security; and looking beyond our borders for inputs, products and ideas.

Barriers:

Funding – 13 points (11 regular votes, 1 kingmaker vote)
Funding is a significant barrier, from knowing what grants are available and how to receive them to the administrative burden of funding programs, uncertainty about conditions and criteria, and lack of capability to tackle the applications process – "what is being asked with what they want to hear." Much of the available funding comes from government sources as there are limited incentives for private funding sources, such as tax credits, for example.

Regulations – 10 points (10 regular votes, 0 kingmaker votes)
Regulations surrounding the Scientific Research and Experimental Development (SRED) tax credit make it difficult for food and beverage processing research and innovation to qualify. The regulatory process also makes it difficult to source ingredients for anyone working with novel processes or products, and standards Canadian producers are held to are not enforced on imported products. There is a general perception that governments work in silos and lack front-line understanding of the industry. Food label compliance is difficult and assistance, other than direction to the Canadian Food Inspection Agency website, is hard to come by.

No common goals for the sector – 8 points (6 regular votes, 1 kingmaker vote)
Unlike production clusters that focus on a single commodity like pork, canola or beef, for example, there are no common goals in food and beverage processing that unite the sector. It's a very diverse, fragmented industry that represents everyone from water bottlers and spice blenders to makers of bread and breakfast sausage.

Other opportunities receiving priority votes included science awareness; poor consumer education leading to "anti" trends; GF2 not matching needs of SMEs; not looking to other industries for technical solutions; disconnected R&D process between industry and academia; Canada's large geography and small population; retail listing fees and shelf space; label compliance; shelf life studies; poor access to raw materials; IP and legal, including weak patent protection; and lack of co-packing for small volumes.

Also mentioned in discussion but without any priority votes was the availability and skill of labour.

Research capacity and funding opportunities

More should be done to build collaborative approaches, such as working with processors that are active in other research clusters like pork, canola or dairy, for example, or to encourage companies to participate in re-competitive projects on common issues like pathogen control or automation. This could benefit the sector as a whole – which is challenged by the lack of commonality shared by commodity-base clusters. CFI could play a coordinating function to help identify opportunities for collaboration. Strategic leadership is needed to work as a collective with common goals, but it would raise CFI above "just" being a funding program. Consortia of non-competing companies could be developed, perhaps from the same value chain, to encourage collaborations.

CFI could also play a role in helping bring industry and Canada's food technology centres together. Some equipment upgrades are needed to properly service the industry and the centres, with the help of CFI, could build on the idea of a partnership with innovative Dutch companies looking to move their equipment and technologies into North America.

There should be an ability to access private R&D funding without having to rely so heavily on government for support; leveraged tax write-offs could be one way to encourage this. The sector lacks venture capital funding.

It can be difficult to recruit and retain highly qualified R&D personnel, especially since the expertise needed can be highly specialized – food science and technology skills combined with culinary expertise to create a "flavourist", for example. The industry needs opportunities like a facilitated internship structure with post-secondary institutions to pair up post docs, graduate and undergraduate students with companies looking for talent and help with problems or projects.

Focal points for innovation and key takeaways

Small companies have a lot of great ideas, but they have the hardest time accessing funding. CFI could play a role in engaging small and medium enterprises (SMEs) in research and innovation activities. Small pots of funding could be reserved for SMEs to help with access to pilot plants/incubators, do early idea testing, or complete smaller, shorter projects than a full-scale CFI cluster project that might be beyond their scope.

The big question is where does the food and beverage sector want to be in 15 years? What is its bold challenge statement? The canola industry, for example, has a goal of 50 bushels per acre by 2025. The industry is so diverse, making it a challenge to tie together beverage bottlers with bacon processors. This means the industry needs non-traditional metrics to measure its progress.

CFI was mentioned frequently as a potential matchmaker – linking companies with each other, with researchers and being a repository of information about the industry. It was also suggested CFI could play a role in bringing various companies with similar interests together into collaborative projects so that research isn't happening in silos.

National forum report

June 1, 2017

Following seven regional consultative meetings across the country in May, the Canadian Food Innovators (CFI) held a national meeting in Guelph on June 1. Participants included CFI board members and representatives from industry and government, as well as the two-member CFI facilitation team.
The regional events attracted close to 200 participants representing food and beverage processing businesses, other industry (suppliers, consultants, etc.), academia, and government. Events were held in Halifax, Montreal, Saskatoon, Edmonton, Vancouver, Guelph and Winnipeg, in partnership with the respective regional food processing associations.

The food and beverage processing sector in Canada is diverse. And although there are differences in the kinds and scale of processing done and the products marketed, there is a common desire from coast to coast to improve and expand research and innovation collaboration. Firms are keen to learn how to access resources and expertise to undertake innovation and are open to greater collaboration.

However, through the meetings, it became very clear that a prerequisite for collaboration is that companies must first be connected. In this context, they must be connected to national and regional programs and support institutions. More importantly, Canadian food and beverage companies need new support systems to connect to each other in a way that will create relationships that will lead to collaborative R&D projects and innovative outcomes.

Gaps in the understanding of food innovation in Canada – Al Brezina

Al Brezina, a food industry consultant with more than 25 years of experience in the sector, gave an overview of a report he had prepared for CFI to identify gaps in food innovation in Canada. He reviewed and summarized a number of reports, recently commissioned by the federal government, analyzing the state of food innovation in Canada

The need for greater collaboration in working for solutions to common problems and challenges and the fragmented landscape of innovation resources were identified as key issues. There is also a need to develop and implement more automation technology. The relatively low level of research and innovation among food processors in Canada is attributed to a range of factors. One is the inherent structure of the Canadian industry, with its tight profit margins and intense competition. Other factors are related to systemic, behavioural and cultural reasons. For example, over the past twenty-five years many foreign-owned multi-national enterprises have reduced the R&D they carry out in Canada. On the other hand, the Canadian food processing industry is characterized by hundreds of small-to-medium size enterprises that are owned and based in Canada and they provide the primary source for innovation.

Demonstration projects of precompetitive analysis could help connect the R&D community, like leveraging the CFI consultations, for example. Academia and industry setting priorities with government could work in collaboration with the retail and food service sectors to enable research and innovation.

Overall, because processors are pre-occupied with the competitive, low-margin environment of selling into retail grocery or foodservice distribution channels, their resources to search out innovation opportunities or potential project partners are very limited. Therefore, it is suggested that academic institutions, technology centres and facilitating organizations such as CFI take a more proactive approach connecting with industry for more impactful collaboration. Bringing potential industry collaborators together with researchers to brainstorm and develop an innovation project takes time and resources but has the promise of bearing fruit.

The customer's perspective on food innovation needs – Ian Gordon, Loblaws

Disruptive innovation is rare in packaged goods, where innovation is often confused with fragmentation. Fragmentation is a form of brand extension, in which a company with an iconic, branded consumer packaged good introduces another SKU as a variant on the original theme, such as a different flavor or presentation, that offers consumers more choice but that does not really represent meaningful innovation.

Food processing and distribution are being increasingly recognized by government as the core of one of Canada's largest sectors. The southern Ontario triangle is the second densest food processing cluster in North America.

Grocery retail chain Loblaws has over 2,200 locations across Canada - a store within five minutes of 95 per cent of the population – and about 200,000 employees, with one billion customer visits annually. Not only Canada's largest retailer, it's also Canada's largest consumer packaged goods company with four of Canada's top consumer packaged goods brands: President's Choice, No Name, Farmer's Market, and Life brand.

Building trust with consumers is important. Loblaws' objective every year is seven per cent of sales from new products. As a result, Loblaws has a constant stream coming through their "innovation funnel". The company also operates an innovation store at Maple Leaf Gardens in Toronto where it offers many more SKUs to consumers – cricket flour was mentioned as an example – than could be obtained in their conventional stores. The innovation store allows a manufacturer to experiment with an innovation on a pilot scale at just one high-traffic, leading edge store to get a sense of the degree of consumer interest in the product.

The implications of an innovation must be considered. For example it may offer consumer convenience but does it do so in way that is environmentally friendly? An example of innovation that did not meet this test are non-recyclable single serve coffee pods, where consumers are pushing back on account of the landfill issue they create. A second key test is whether an innovation will drive margin in its category.

In Loblaws' experience, a great deal of real innovation is generated by Canada's smaller companies. It is important to remember that in the food category, about 90 per cent of new product introductions fail after a period of time.

Effective food innovation addresses an unmet consumer need. Innovation also needs to have intellectual property (IP) to protect it; otherwise there is limited competitive advantage to bringing it to market because competitors can quickly introduce knock-offs. This IP could be either a patentable technology (e.g. the frozen chocolate components of President's Choice crackle ice cream) or a process (e.g. President's Choice simulated tandoor oven for naan). Multiple partners are needed to get to the market successfully – bringing academia, industry, retail, and consumers together is critical to success.

Supercluster update
Sylvie Verdon, Innovation, Science and Economic Development Canada

The federal government's super cluster initiative has recently been announced. All available information is online; full applications are due by September, preceded by a Letter of Intent that must be submitted by July 21st 2017. Government funds have to be matched dollar for dollar by industry and in-kind contributions are acceptable as part of matching funding.

Project applications have to clearly focus on the benefit to Canada and that going global is an easily achievable goal now and not five years or more in the future. Food is one of six targeted sectors, although funding will depend on the quality of project proposal submitted. Collaboration is essential and companies are encouraged to look outside their traditional realm for partners.

The super-cluster information was provided to the participants for information. In discussion, participants concluded that the supercluster initiative was beyond the scope of CFI to pursue in the short time frame available.

Key findings from the regional sessions – Hugh Maynard

Four main themes were recommended based on the consultation results:

- Responding to consumers
  - Demands, perceptions, trends and preferences
  - Food for health
- New technologies
  - Lean, green, clean
  - Novel ingredients, packaging innovations
- Value-adding
  - Raw to refined
  - Monetizing waste streams/by-product use
- Resource management
  - Automation and process improvement
  - Sustainability, corporate social responsibility

It was agreed that there should be a strong emphasis on novel and disruptive technologies, as well as knowledge and technology transfer of project outcomes to the broader food and beverage processing sector. Projects will need to be science-based and show a collaborative approach.

There was general agreement with the selected theme areas but they will need to be refined to be more specific and outcomes-based. The process – how we achieve outcomes – is as important as the outcomes themselves.

There was also agreement that there is a need to foster collaboration through CFI and that CFI should be a leader in and delivery agent of that kind of innovation support to the industry. The challenge to CFI's taking this role is the lack of resources for the organization. CFI was originally established to pursue the food processing science cluster through the *Growing Forward 2* AgriInnovation Program and is not funded for other roles and responsibilities by industry or by government.

Program design – facilitated discussion

Topic #1 – funding formula for GFTC legacy funds
The general consensus was the GFTC funds should have an SME focus. More support is needed for small and medium enterprises to foster R&D, including encouraging inter-firm collaboration at the SME level. It was suggested that perhaps a food technology centre could be a project applicant with a series of SMEs as partners, as it can be difficult for an SME to manage and cash flow a research project. One challenge is whether those centres would qualify as a lead applicant for a CFI project, because typically, a portion of their funding comes from provincial government.

Topic #2 – Project size
It has been announced that under the Next Policy Framework that a cluster has to have a minimum of $5 million of investment to a maximum of $20 million. Four new clusters are being added: wine, feed and livestock, agronomy, and specialty crops. It is not yet known if the overall cluster budget will remain at the current level of $120 million, or if additional funds will be channeled into the AgriInnovation program to support the new clusters and allow for expansion of the established clusters. For CFI projects, it was agreed that a project must be at least $50,000 without a set upper limit. However, CFI should reserve the right to put one in place if needed. If projects are scaled too high, companies who can't afford innovation will not be encouraged to apply.

Topic #3 – Use of pre-proposal as optional first step
The pre-proposal (Letter of Intent) will be an optional first step for applicants. Due to timing constraints, it will not be mandatory. The CFI board will approve projects to go forward to Agriculture and Agri-Food Canada, but final project approval will lie with AAFC. Compared to the first cluster, better screening is needed in the call for proposals with respect to project eligibility etc.

Topic #4 – Distribution process for pre-proposals and proposals
Similar to the first cluster, the call for proposals will be sent to industry through the provincial food processing associations, as well as AAFC's Science and research branch, universities and institutions. It was suggested to also send the information to venture capital companies who are active in agriculture and food, food technology centres, research services offices at universities, agencies like Farm Credit Canada, and provincial ministries of agriculture. All information will be posted on the CFI website, including a pre-fillable PDF form.

Topic #5 – Degree of proprietary benefit vs collaborative benefit
Projects must be collaborative in nature with a strong knowledge technology transfer component.

Topic #6 – Evaluation process for proposals
How this will be handled will depend on how many project applications are received. By default, the process from the last cluster could be followed again: after initial acceptance, eligible projects underwent a scientific review before the CFI reviewed and adjudicated the proposals. The Agricultural Adaptation Council assisted with a pre-screening process the last time; projects that were missing information or came from ineligible companies or sectors did not move forward. An efficient process with set time allocations for each project being reviewed will be needed.

Priority setting forum participants

Atlantic regional forum

FIRST NAME	LAST NAME	COMPANY
Olufemi	Adeniyi	Famolex Integrated
Jerry	Bidgood	Prince Edward Aqua Farms Inc.
Tim	Carroll	University of PEI
Jared	Christensen	CCNB Grand Falls
Peggy	Crawford	Acadia University
Bryana	Ganong	Ganong Bros. Limited
Danielle	Goodfellow	Mount Saint Vincent University
Dannie	Hanson	Louisbourg Seafoods
Julie	Houde	Nova Scotia Business Inc.
Bryan	Inglis	Food Island Partnership
Shawn	Ingraham	Agriculture and Agri-Food Canada
Nicholas	Katspontes	Semintha Nutraceuticals Ltd.
Andrew	Kendall	St. Francis Xavier University
Jane	La Rocque	Clearwater Seafoods
Joseph	Lake	McCain Foods Limited
Josée	Landry	CCNB Grand Falls
Ken	Lawrence	P & H Milling Group
Darren	Leyte	Health Canada
Bohdan	Luhovyy	Mount Saint Vincent University
Jolene	MacEachern	Dalhousie Unviersity
Alexandra	McCann	Nova Scotia Business Inc
Fred	Oickle	Farm Credit Canada
Steven	Owen	National Research Council
Margaret	Palmeter	Dalhousie, ILI
Allan	Paulson	CIFT/Dalhousie University
Shah	Razul	St. Francis Xavier University
Michel	Roach	Farm Credit Canada
Jeff	Rose	Barbours
Laurie	Sandeson	NSDA
Mark	Simms	NSDA
Jim	Smith	BioFoodTech
Debbie	Wallace	ISED
Junzeng	Zhang	National Research Council of Canada

Quebec regional forum

FIRST NAME	LAST NAME	COMPANY
Louis	Falardeau	Bonduelle
Michel	Casgrain	Bonduelle
Marie-Claire	Pelletier	Olymel
Sasithorn	Tajchakavit	Lassonde
Pierre	TURNER	Lassonde
Vincent	Banville	Agropur
Solène	Savard	Delta daily food
Laurent-Xavier	Avril	Delta daily food
André	rCôté	St-Arneault
Guy	Boitier	Groupe Thibault
Martin	Cournoyer	Chocolat Lamontagne
Marie-Claude	Chopin	CTAQ
Dimitri	FRAEYS	CTAQ
Sylvie	CLOUTIER	CTAQ
Fadia	Naim	Cintech
Bruno	Ponsard	ITEGA
Salwa	Karboune	McGill
Jean-Claude	Dufour	Laval
Sylvie	Turgeon	INAF
Sylvie	Jenni	AAC
Tony	Savard	CRD St-Hyacinthe
Sébastien	Villeneuve	CRD St-Hyacinthe
Michel	Britten	CRD St-Hyacinthe
Sonia	Ringuette	CRD St-Hyacinthe

Saskatchewan regional forum

FIRST NAME	LAST NAME	COMPANY
Michael	Nickerson	University of Saskatchewan
Rick	Green	POS Bio-Sciences
Abe	Ens	Nutrasun Foods
Natasha	Vandenhuk	Three Farmers
Zafer	Bashi	Ministry of Agriculture
Ron	Kehrig	
Mehmet	Tuibek	AGT Food and Ingredients
Kari	Doerksen	Intertek
Shannon	Hood-Niefer	Saskatchewan Food Industry Development Centre
Mark	Pickard	Infraready Products
Leonard	Yungwirth	Grain World Inc
Kelly	Shone	Bioriginal
Betty	Forbes	Northern Vigor Berries Inc
Michael	Oelck	Carnation BioProducts
Alister	Muir	Saskatchewan Food and Ingredients Processors' Association

Alberta regional forum

FIRST NAME	LAST NAME	COMPANY
Alan	Hall	ACIDF & Alberta Food Cluster
Marilynn	Boehm	AFPA
Ted	Flitton	AFPA
Ann	de St. Remy	Agriculture & Agri Food Canada
Lorrie	McFadden	Agriculture & Agri Food Canada
Robert	Ippolito	Agri-Food Discovery Place
Neeraj	M	Ahluwalia Fresh Farms
Kenneth	McGlennon	Ahluwalia Fresh Farms
Rajan	Ahluwalia	Ahluwalia Fresh Farms
Ken	Gossen	Alberta Agriculture & Forestry
Cornelia	Kreplin	Alberta Innovates
Marilyn	Sochatsky	Awake Cereals
Subir	Bagchi	Bagchi International Solutions
Chef	Nash	Bagchi International Solutions
Angie	Ricard	Beanz Please Inc
Greg	Mohr	Beemaid Honey
Luis	Hurtado	Cazuelitas Inc.
Paul	Flesher	Crust Craft
Bryan	Burrell	Crust Craft
Jerry	Bigam	Kinnikinnick Foods
Jeff	Clark	Kitchen Partners
Mustafa	Cetin	Alp & Sons International
Karsten	Prochera	Pulse Foods
Geoff	Stewart	Rig Hand Craft Distillery Inc.
Gord	DeJong	Siwin Foods
Brad	Shapka	Sunny Boy Foods
Gary	Huising	Sunrise Bakery
Dave	Price	Sunterra
Stan	Blade	University of Alberta
Branka	Barl	National Research Council

British Columbia regional forum

FIRST NAME	LAST NAME	COMPANY
James	Street	BC Ministry of Agriculture
Sarb	Mund	Commissary Connect
Jollia	Fung	Karambitez
James	Pratt	Prosnack
Kay	Woodland	Golden Boy
Marie	Nyembaa	
Jenna	Bock	Golden Ears Cheese
Emma		Golden Ears Cheese
Benjamin	Lightburn	Mazza Innovation
Harvey	Martens	Nutra Ex
Lily	Zou	Nutra Ex
Matt	Thomas	Georels
Juli	Rogerson	Georels
Meagan	Clarke	ISED
Celena	Benndorf	Chai Chics Meals Inc.
Randy	Puder	Chai Chics Meals Inc.
Ken	Schneider	Quejos Ancient Foods
Jeff	Zonneveld	Meadowfresh Dairy Corp.
Renee	Chan	The True Nosh
Rick	Gagner	Rhema
Rickey	Yada	UBC
Rebecca	Robertson	BCIT
Dave	Eto	Naturally Splendid
Bryan	Carson	Naturally Splendid
Paula	Siddons	Fieldstone Organics
Katie	Ferland	City of Richmond

Ontario regional forum

FIRST NAME	LAST NAME	COMPANY
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Arlene	Karan	Campbell Company of Canada
Art	Hill	University of Guelph
Ashley	Honsberger	Agri-food Management Institute
Barbara	Dillingham	Ontario Ministry of Agriculture, Food & Rural Affairs
Beth	Schuur	Kellogg Canada
D Arcy	McGee	Honeybrick
Doug	Alexander	Ippolito Fruit and Produce Ltd.
Elsayed	Abdelaal	Guelph Research and Development Centre for AAFC
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Eugene	Jaworski	Agriculture and Agri-Food Canada
Gessica	Arendoque	Agriculture and Agri-Food Canada
Hany	Anany	Agriculture and Agri-Food Canada
Heather	McFraser	Harvest Goodies
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Jitendra	Sagili	Maple Leaf Foods
Joachim	Baur	Griffith Foods Limited
Laura	Sider	Agricultural Adaptation Council
Lee	Dimascio	Jungbunzlauer Canada Inc
Leslie	Calisina	IOI Loders Croklaan
Louise	Jacques-O'Hare	Dare Foods
Luis	Garcia	Conestoga College
Luke	Gartner	Ontario Ministry of Agriculture, Food & Rural Affairs
Mahendra	Bungaroo	Fiera Foods Company
Michael	Toombs	Ontario Ministry of Agriculture, Food & Rural Affairs
Michael	Metson	Agriculture and Agri-Food Canada
Michael	Weber	Ontario Ministry of Agriculture, Food & Rural Affairs
Michelle	Kienitz	George Brown College
Milena	Corredig	Gay Lea Foods Co-operative Ltd
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Sampathkumar	Balamurugan	Guelph Research and Development Centre for AAFC
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Tammy	Tondevold	Ontario Ministry of Agriculture, Food & Rural Affairs
Zhanhui	Lu	Guelph Food Research Centre

Manitoba regional forum

FIRST NAME	LAST NAME	COMPANY
Melanie	Orlowski	Agriculture and Agri-Food Canada
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Mike	Jackman	Agriculture and Agri-Food Canada
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Karen	Colley	Bee Maid Honey Limited
Werner	Saxler	City Bread
Derek	Kostyniuk	City Bread
Anan	Palanichamy	Dr. Beetroot Canada
Virginia	Enriquez	Floresth Foods Ltd.
Alphonsus	Utioh	Food Development Centre
Jason	Wortzman	Granny's Poultry Cooperative
Doug	Langrell	Interlake Saskatoons Ltd.
Maurice	Bouvier	Manitoba Agriculture
Laurie	Crowe	MB Agriculture Food & Agri-Prod Proc. Branch
Earl	Mclaren	MSP Starch Products Inc.
Natalie	Dueck	Natalie's Lifesense Inc. Dba "Rawnata"
Lee Anne	Murphy	NuEats Food Innovation
Lawrence	Porhownick	Perfect Pierogies Ltd.
Pina	Romolo	Piccola Cucina Inc.
George	Groumoutis	Sky Blue Water Inc.
Daniel	Song	Tea Mate
Mark	Colley	The Winning Combination Inc.
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Martin	Scanlon	U of M - Agric. and Food Science

National forum

FIRST NAME	LAST NAME	COMPANY
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Joe	Lake	McCain Foods Limited
Jim	Smith	BioFoodTech
Louis	Falardeau	Bonduelle Americas
Jason	Wortzman	Granny's Poultry Cooperative
Milena	Corredig	Gay Lea
Michael	Metson	Agriculture and Agri-Food Canada
Javier	Gracia-Garza	Agriculture and Agri-Food Canada
Sylvie	Verdon	Innovation, Science and Economic Development Canada
Sylvie	Jenni	Agriculture and Agri-Food Canada
Stewart	Cressman	Agricultural Research Institute of Ontario
James	Farrar	Canadian Food Innovators
Laura	Sider	Agricultural Adaptation Council
Doug	Alexander	Ippolito Fruit and Produce Ltd.
Brendan	MacNeil	Maple Leaf Foods

Canadian FOOD Innovators

www.canadianfoodinnovators.ca

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