Agri-Food Innovation Council
aic
Conseil de l'innovation agroalimentaire

# AIC2023 *National Meeting*

# PROGRAM

## Agri-Food: Bringing research and innovation to reality – knowledge dissemination and adoption

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www.aic.ca | @agfoodinnov
Wifi: ChateauCartier Password: cartier

# WELCOME MESSAGE

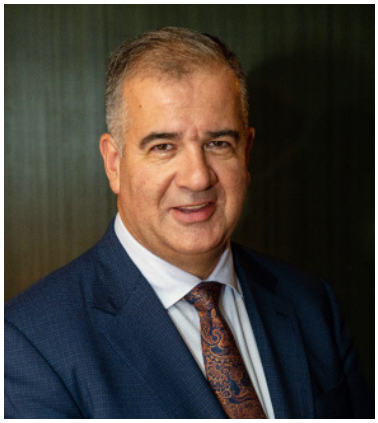
Dear attendees,

**Welcome to AIC's National Meeting!**

This year's theme focuses on bringing research and innovation to reality – knowledge dissemination and adoption. This conference is meant to explore the latest innovations in the agri-food sector as well as mechanisms to support adoption of these in the industry.
We are pleased to provide delegates with a line-up of impressive speakers from government, politics, academic, business, and NGOs in the agri-food sector. The diversity of background provides a well-rounded view of topics discussed during the conference.

We would like to extend our gratitude to all our esteemed speakers, sponsors, and attendees for making this event possible and contributing to the dialogue today. Your dedication to agri-food innovation and sustainability is invaluable.
We hope that you will enjoy the presentations, be engaged, and take time to discuss with your colleagues the latest on the research and innovation fronts.

**Serge Buy**
Chief Executive Officer
Agri-Food Innovation Council



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# SCHEDULE AT A GLANCE

## November 7, 2023

**8:00 – 9:00am**
*Networking Breakfast*

**9:15 – 9:30am**
*Welcome Address*

**Cam Dahl**, Chair, Board of Directors at Agri-Food Innovation Council

**9:30 – 10:15am**
*Setting the Stage*

**Serge Buy**, President and CEO, Agri-Food Innovation Council

**10:15 – 10:45am**
*Network & Refreshment Break*

**10:45 – 12:00pm**
*Panel: PRS® technology; A "time-tested" Improvement to the Traditional Soil Testing Paradigm*

Over the last 30 years, resin membranes have grown from a research based, "Plant Root Simulator" (PRS®) to the become a new paradigm of soil testing. Combining this measure of biologically available soil nutrient supply with Barber nutrient ion flux equations and soil conditions has yielded a powerful computer model, the PRS® CropCaster. Our joint presentation will highlight several vignettes of research selected from the 2500+ projects that have used the PRS® technology as a research tool and how the Western Ag Group of Companies translates this science into improvements in the PRS® CropCaster for growers. Researchers, agronomists and farmers alike have greatly benefited from this "science-based value chain" via improved understanding of soil nutrient supply, better crop nutrition, yield prediction, environmentally sound nutrient management and, ultimately, greater economic success in western Canada.

Dr. Jeff Schoenau, University of Saskatchewan, Dept. of Soil Science

Ken Greer, MSc., PAg, Western Ag Group of Companies

Edgar Hammermeister, PAg, Agrologist and Farmer

Brad McKinney, Manitoba Farmer

**12:00 – 1:00pm**
*Networking Luncheon*

# SCHEDULE AT A GLANCE

**1:00 – 1:45pm**
*Presentation: Building Capacity Through Collaborative Research: PROCINORTE's Efforts to Combat African and Classical Swine Fever in the Americas*

African Swine Fever (ASF) and Classical Swine Fever (CSF) are highly contagious viral diseases that threaten pig populations worldwide. Their rapid spread between countries can disrupt global food supply chains, adversely affecting producers and industry.

PROCINORTE is a trilateral network of agricultural research bodies in Canada, Mexico, and the US that promotes research collaboration and knowledge-sharing among scientists across the Americas to protect animal health. PROCINORTE has established a collaborative science programme to support research collaboration and training efforts to contain the spread of ASF and CSF. Last year, applicants from Trinidad and Tobago and the US received grants to assess ASF risk and improve surveillance and control.

This year, the programme is evaluating applications from eight Latin American and Caribbean countries to partner with US and Canadian institutions in research areas like novel diagnostic tool development, risk assessment and management, traceability methods, ASF preparedness training, and molecular epidemiological strategies. Collaborative research efforts and training are crucial to building capacity and promoting knowledge-sharing among scientists from different regions.

The programme will provide a platform until 2026 for collaborative research to transfer technologies, protocols, and best practices to develop effective ASF and CSF control.

**Vivian Arguelles Gonzalez**, Technical Specialist, IICA

**Dr. Jean-Charles Le Vallée**, Canada Representative, IICA

**1:45 – 2:30pm**
*Joint Presentation*

**Ava Recchia**, University of Windsor

***Building a Mushroom Harvesting Virtual Environment to Image the Future of Automation***

Canada is a prominent mushroom producer with over 100 farms across the country. Harvesting mushrooms is both labour intensive and physically demanding. The labour force is required to be skilled, dependable, and long-term. Mushroom farms are struggling to find such a labour force, with the current national job vacancy rate close to 20%. This is having a substantial negative impact on the sector's production and overall revenue. Automated robotic technologies, which are viable mechanisms for mushroom harvesting, have the potential to close this gap. This research project focuses on the development of simulation models that explore the implementation of automated harvesting solutions in the mushroom production system. A model construction framework is also proposed. Various scenarios are considered, including fully manual, fully automated, and human robot collaboration (HRC). The simulation models serve as an analysis and decision-making tool for farm operations. An optimal working balance between manual and automated harvesters can be determined for a collaborative system. Theoretical best practices and ideal parameters for automation, such as the number of robotic harvesters, range of picking motion, and areas of operation, can also be established. Given that the agri-automation domain is a rapidly growing field, this research will help to facilitate growth in the Canadian mushroom sector and address the labour issues it is currently facing. The model framework will serve as a guideline for future harvesting simulation projects involving other crop types.

# SCHEDULE AT A GLANCE

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|---|---|
|  | Dr. (Ruth) Jill Urbanic, Professor, Department of Mechanical, Automotive, and Materials Engineering, University of Windsor |
| ***Development of Simulation Models for Mushroom Harvesting***<br><br>Before introducing automation into an environment, a thorough assessment of the environment needs to be conducted. This presentation focuses on a white button mushroom farming application. Mushroom harvesting automation is being pursued in both industry and academia as this is a labour intensive process. To determine the baseline requirements for an automated system, a multi-step methodology was taken. The environmental characteristics were determined, and the mushroom bruising characteristics were experimentally derived for a wide range of sizes. Force and motion data collection was performed at a mushroom farm to assess the dynamics of the mushroom picking process using a specialty data collection glove and motion analysis tools. Rapid Upper Limb Assessments (RULA) are conducted to analyze the postures during the harvesting process, and this highlights potential risks. A virtual environment that reflects the size and characteristics of the mushroom beds is generated. Avatars are created in JACK that match the observed postures and are used to simulate motions and forces in the present manual harvesting state, and is being used to simulate 'what if' scenarios. Establishing a virtual environment and performing 'what if' scenarios allow for new designs to be explored without significant investments. | |
| **2:30 – 2:45pm**<br>*Network & Refreshment Break* | |
| **2:45 – 4:15pm**<br>*Presentations and Panel Discussion: Weston Family Foundation Homegrown Challenge Initiative recipients*<br>*Homegrown Innovation Challenge: Using a Challenge Prize Funding Model to Spur Innovation and Adoption* | |
|  | ***Agrivoltaics: Canda's Future***<br><br>Dr. Joshua Pearce, Thompson Chair of Innovation at Ivey Business School and the Department of Electrical & Computer Engineering at Western University |
|  | ***VertBerry: Proof of Concept of an Integrated Aeroponic System for Indoor Berry Cultivation***<br><br>Dr. Martine Dorais, Full Professor, Department of Phytology at Laval University |
|  | ***Pioneering Greenhouse Technology to Feed Communities***<br><br>Sabine Bouchard, Manager of Research and Innovation at the Boréal Collège |
|  | Dr. Lesley Campbell, Professor in Plant Evolution and Ecology at Toronto Metropolitan University |
|  | Dr. Lukasz Aleksandrowicz, Senior Program Manager at Weston Family Foundation |

# SCHEDULE AT A GLANCE

**4:15 – 5:00pm**
*Presentation: Extension & Adoption: Bringing Research and Innovation to Reality*

**Scott Ross**, Executive Director at Canadian Federation of Agriculture

Scott will provide an overview of the state of extension in Canada, its increasing prominence in Canadian policy discussions and value, and innovations that warrant taking a fresh look at what extension should look like. Based on this, Scott will explore what a made in Canada approach to investment in extension should address moving forward.

**5:00 – 7:00pm**
*Networking Reception*

## November 8, 2023

**8:00 – 8:45am**
*Networking Breakfast*

**8:45 – 9:45am**
*Panel: Ottawa Smart Farm Program – Bridging the Knowledge Gap*

**Susanne Cork**, Business Development Director, Smart Farm and Advanced Robotics at Invest Ottawa, Area X.O.

**Dr. Tet Yeap**, Associate Director, System Science Program and Associate Professor, Faculty of Engineering at the University of Ottawa

**Jordan Wallace**, Founder and Advanced Precision Solutions Engineer at GPS Ontario

**9:45 – 10:30am**
*Presentation: Hurdles to Agtech Adoption and Their Solutions*

**Mairead Matthews**, Manager, Digital Policy at Information and Communications Technology Council

Mairead will share key findings from ICTC's two agri-food technology studies, published in 2021 and 2023. Mairead will review common hurdles to agri-food technology adoption, including high technology costs, high financial risk, labour market shortages, and a lack of interoperability between agri-food technology solutions. Following this, Mairead highlight what different agri-food stakeholders can do to help overcome these hurdles, with key takeaways for agri-food technology companies, agri-food producers and manufacturers, and post-secondary institutions.

**10:30 – 11:00am**
*Network & Refreshment Break*

# SCHEDULE AT A GLANCE

**11:00 – 12:15pm**
*Panel Presentations*

**Dr. Helen Hambly**, Ontario Agricultural College, University of Guelph

***Transforming Agri-Food Knowledge into Policy and Practice: What do we know and what does the future look like?***

In the agri-food sector, there is a lot of activity in translating and transferring research to producers, but less success in getting it into policy and scaled-up practice. Disseminating more and more information has not filled gaps between the production of knowledge and its uptake in agri-food systems. The effectiveness of information lies in its use, and specifically, how well it fits with or adapts to goal achievement. Information creates value when it builds capacity at the level of individuals and organizations, but also if it generates practice at scale, with effective, efficient, and high impact learning networks in dynamic, resilient systems. The benefits of diverse knowledge help to navigate uncertainties and adapt to shifts in global/local system elements. Producers and value chain actors in an agricultural powerhouse nation such as Canada face unprecedented change, including what is known and unknown, technological, and institutional, and all at once. Sources and flows of information and communication in agri-food systems are complex, often chaotic and crisis-prone.
The presentation points to agricultural extension and education work in Canada that can revitalize the nation's agri-food system. Referring to major technological change models we discuss influential trends in open data, knowledge democratization, digitalization and augmented producer/processor knowledge using artificial intelligence and virtual reality. Canadian agri-food policy can better mobilize collective knowledge that transforms agri-food chains in positive ways for society, environment, and economy at large.

**Dr. Amy Lemay**, Founder at VISTA Science and Technology Inc

***Knowledge Translation & Transfer (AgKTT): Driving Discovery, Development and Commercialization, Acceptance and Adoption of AgriInnovation***

In this presentation I will introduce a framework for agriculture knowledge translation and transfer (AgKTT Framework) – an evidence-based model for and approach to KTT that addresses the unique challenges and needs of the agri-food sector for driving the discovery, development, commercialization, acceptance, and adoption of agri-innovations. More than ever the agriculture industry needs new scientific knowledge and innovations to address social-ecological challenges. As we push the frontiers of science, there will be additional challenges to the discovery, development, commercialization, acceptance, and adoption of agri-innovations, driven by a more diverse range of stakeholders who have multiple, often competing goals, interests, and values. To meet these challenges, we need new approaches and tools for curating, synthesizing, translating, and disseminating agriculture research and innovations. The challenges of mobilizing research into broader use and application are well documented. Agriculture research and innovation presents unique challenges and opportunities. Existing KTT frameworks and tools have been developed for other sectors and do not reflect or support the unique aspects or realities of the agrifood sector. The efficacy and effectiveness of most KTT tools and methods have not been tested or validated for agriculture applications. KTT is fragmented across sectors, commodities, regions and stakeholders. The AgKTT framework addresses these shortcomings by providing a coordinated, evidence-based approach to KTT to accelerate the discovery, development, commercialization, acceptance, and adoption of agri-innovations. The presentation will include critical success factors for AgKTT and scenarios for applying and implementing the AgKTT framework in practice and for continued AgKTT research.

# SCHEDULE AT A GLANCE

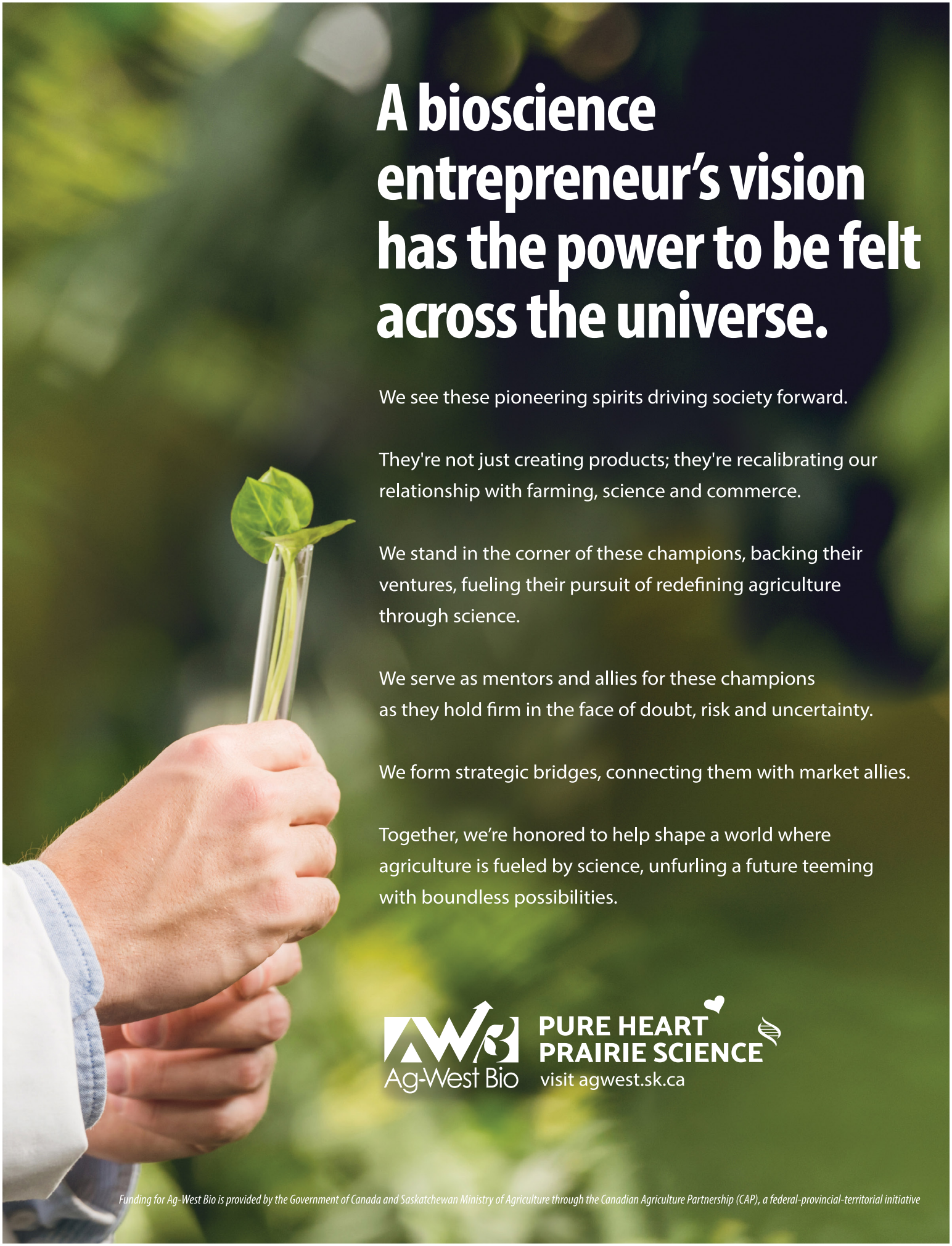
**12:15 – 1:30pm**
*Networking Luncheon*

**1:30 – 2:15pm**
*Presentation: Vineland – From Research to Adoption – the Path Forward*

**Dr. Ian Potter**, President and CEO at Vineland Research and Innovation Centre

**2:15 – 2:45pm**
*Presentation: How does Canada compare? An International Review of Agri-Food Adoption*

**2:45 – 3:15pm**
*Wrap-up and Refreshments*
*Learnings from the Sessions and Next Steps*


A bioscience entrepreneur's vision has the power to be felt across the universe.
We see these pioneering spirits driving society forward.
They're not just creating products; they're recalibrating our relationship with farming, science and commerce.
We stand in the corner of these champions, backing their ventures, fueling their pursuit of redefining agriculture through science.
We serve as mentors and allies for these champions as they hold firm in the face of doubt, risk and uncertainty.
We form strategic bridges, connecting them with market allies.
Together, we're honored to help shape a world where agriculture is fueled by science, unfurling a future teeming with boundless possibilities.
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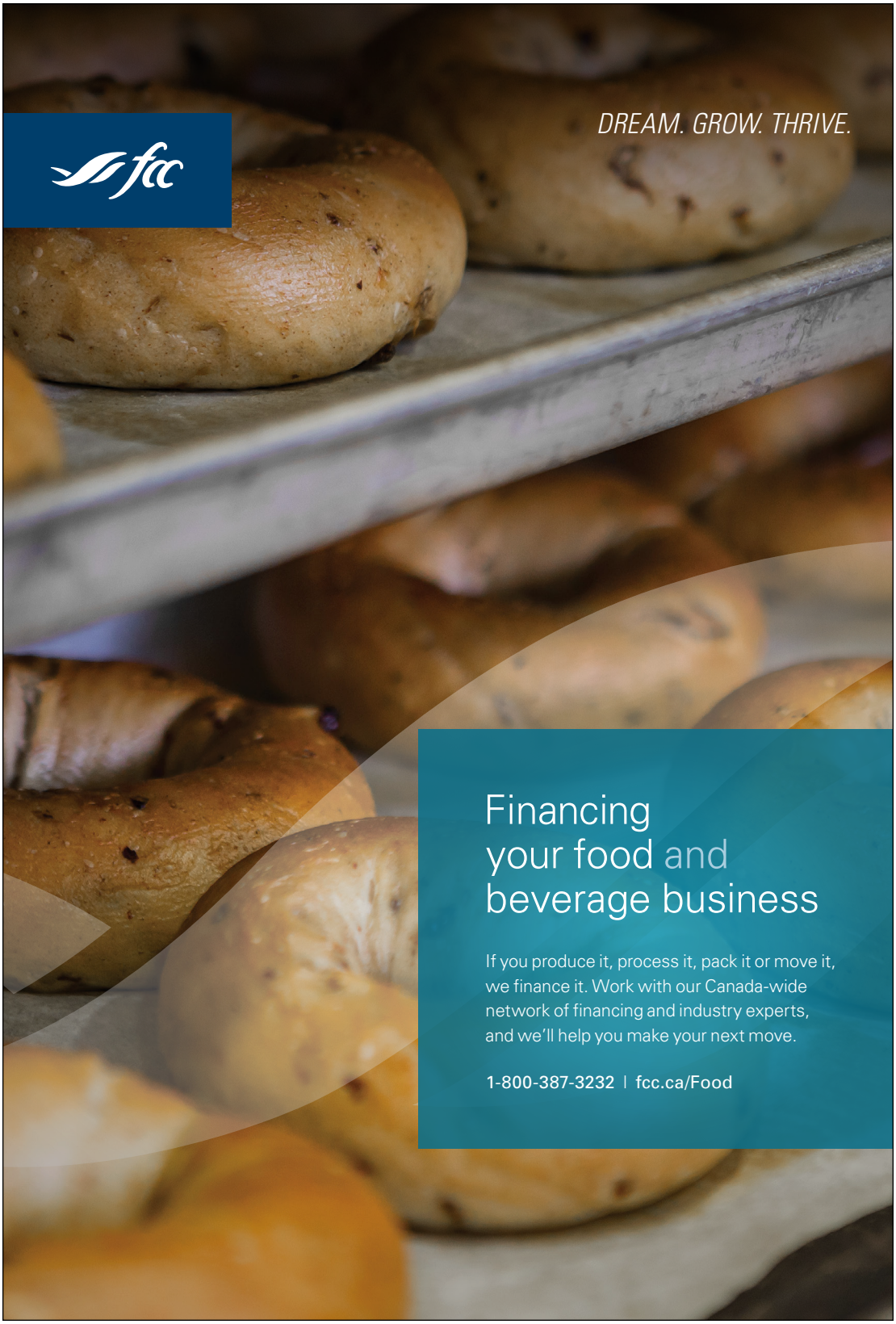
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