

# GAME CHANGERS

June 2022



*Canadian Opportunities  
in Alternative Protein*





Credit: CHat Photography

By 2035, it is estimated that one in ten servings of meat, eggs, and dairy will be from non-traditional sources, including those derived from plants, algae, fermentation, cellular agriculture, insects or other methods of protein generation that are not dependent on animals.<sup>1</sup>

The question is, what percent of those servings will be developed in Canada?

This report outlines Canada's exceptional progress in the rapidly-evolving world of alternative protein, and highlights the six elements that make Canada a country to watch: agricultural capacity; R&D expertise; government support; cohesive industry-innovation networks; sustainability commitments; and market and regulatory access. It also provides an unprecedented look at the diverse and growing list of players that make up this unique alternative protein ecosystem, including public and private investors, major corporations, R&D expertise, and an exploding number of innovative start-ups.

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Information about the co-authors of this report can be found on p 42.



NOTE: Alternative protein sources for production animals, pets and aquaculture is a significant area of development globally and in Canada. Many alternative protein producers have opportunities and interest in both animal feed and human food. However, for the sake of brevity, the focus of this report is on alternative protein for human consumption. Insects can also be considered under the category of alternative protein. For more on this topic, see the report on [Canada's insect agriculture industry](#).

Content in this report is meant for informational purposes only, and is not exhaustive or representative of all activity or stakeholders involved in this industry. The report was compiled in Q1 2022, and may not reflect changes or events that have occurred since March 31, 2022.

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# THE GLOBAL OPPORTUNITY

## Why alternative proteins are here to stay.

Forecasters predict that alternative proteins will comprise 10% of all protein servings by 2035 and represent an annual market of \$290B.<sup>2</sup>

This growth reflects the increasing interest in health and nutrition, environmental sustainability, animal welfare, and food security and sovereignty.



*Alternative proteins will be how we feed the world sustainably. This growing industry represents an enormous economic opportunity globally, and for it to reach its full potential we need to see more innovation, investment, R&D, talent recruitment and technological advancements. New ways of producing meat must advance to match consumer preferences on taste, texture, appearance, aroma, price, nutrition, sustainability, variety, and familiarity. We need everyone at the table – the public and private sectors, industry, NGOs, and consumers – to reimagine our food system for the better.*

**Bruce Friedrich**  
Founder and CEO of the Good Food Institute





## Consumers 'flexing' their muscle<sup>7</sup>

*While it may be tempting to equate consumption of alternative proteins with younger demographics motivated by strong social justice values, the data suggests there is more to it. Interest in alternative proteins crosses all age groups and is motivated by both health and sustainability issues.<sup>8</sup> In fact, the largest area for growth in the market comes from those with a flexitarian diet. For instance, 93% of those who purchase Beyond Meat burgers also regularly purchase animal-based products.*

**Health and Nutrition:** Consumers around the world consistently cite health as the main driver behind their consumption choices, and this sentiment was elevated during the height of the pandemic. Although there is room for improvements in nutrition (see p 8) alternative proteins are generally considered to be a healthy choice, particularly where they replace animal-based foods that are higher in saturated fat and cholesterol. The 2018 revisions to Canada's Food Guide, for instance, recommended higher intakes of plant-based proteins to support good health.<sup>3</sup>

**Environmental Sustainability:** Another major driver behind the growing interest in alternative proteins is the desire to choose more sustainable foods that can alleviate the global impact of animal-based agricultural practices.<sup>4</sup> Comparison of factors such as land and water use, and GHG emissions, indicate that animal-based proteins are generally more taxing on the planet than other sources of protein.<sup>5</sup>

**Food Security and Sovereignty:** The global population is on track to reach 9 billion by 2050, putting extreme pressure on our food systems.<sup>6</sup> Supply chain disruptions due to the pandemic, climate and weather issues, and political events have put food security and sovereignty top of mind for many governments, including Canada's. Alternative proteins represent an opportunity to develop a diverse and local supply of proteins to allow Canada to continue to play a critical role in feeding citizens in and outside of its borders.

## Canadian Consumer Perceptions

*In October 2021, the Agri-food Analytics Lab at Dalhousie University, in partnership with Caddle Inc., conducted a national Canadian survey on consumer perception, willingness and openness to cell-based, cultured food as an alternative protein. Insights from the over 10,000 respondents include:*

- *About one quarter of Canadian respondents have some type of dietary restriction, with nearly 6% identifying as vegetarian (twice as high among Gen Z, those born between 1997-2005).*
- *About one-third are aware of cell-based, cultured proteins (39%), and just under one-quarter (21%) consider themselves very knowledgeable.*
- *About one-third of respondents support the development and commercialization of cell-based, cultured food in Canada.*
- *Just over a third of respondents expect the category to:*
  - *be less impactful on the environment,*
  - *help ease climate change, and*
  - *be more ethical than animal-based foods.*
- *By 2030, 27% of Canadians estimate that we will obtain our protein from equal parts animal-, plant- and cell cultured- sources, and another 26% believe it will be obtained from plant-based sources only.*

*From the strong survey response, Canada stands to benefit from further R&D, and business commercialization of the nascent cell-based food industry, building on national strengths in food safety regulation, and high-quality food product development.*

**Mark Juhasz, CEO,**  
Harvest Insights & Research Associate,  
Agri-food Analytics Lab, Dalhousie University.



Credit: Big Mountain Foods

## What are Alternative Proteins?



**PLANT-BASED:** Plant-based proteins are produced directly from plants, including beans and legumes, grains, nuts, seeds, and seaweed, which contain high amounts of amino acids. In many cases, the proteins are extracted from the raw plant material and can be incorporated with other ingredients to create end products that mimic animal-based proteins such as meat or dairy.

**TMRW**

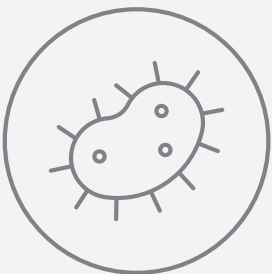
TMRW Foods is a Canadian start-up that uses plant-based ingredients to develop a range of products. They raised a seed round investment of \$2.6M in 2021, and announced placement of plant-based meats in Walmart and Loblaws in early 2022.<sup>9</sup>



**CULTIVATED:** Cultivated proteins are produced directly from animal cells. Often referred to as cellular agriculture or cell ag, this process uses cultivation biotechnology to build the basic elements of meat such as muscle and fat. This means the end product is identical to conventional meat at the cellular and sensory level, maintaining the flavour, texture, aroma and nutrition of the animal protein it was derived from.

**FUTURE  
FIELDS**

Future Fields is a Canadian start-up has filed patents for a method of producing cheaper growth-media for cultivated meats, and raised \$2.2M from US venture capital firms in April 2021.<sup>10</sup>



**FERMENTATION:** Fermentation is a powerful and ages old technology in food production. Modern applications in alternative proteins use microorganisms through anaerobic digestion (traditional fermentation), biomass fermentation, or precision fermentation. Each method has advantages for developing large amounts of proteins with specific flavour, texture or nutrient profiles.

**DeNOVA**

DeNova is a Canadian, sustainability-focused start-up develops technologies that convert greenhouse gases to methanol, which grows microbes that become a protein ingredient. While currently focused on the aquaculture feed market, their approach presents a much broader sustainable protein opportunity.<sup>11</sup>



# POTENTIAL FOR GROWTH

THE WHITE SPACE HIDDEN IN THE GROWING PAINS OF THIS NEW INDUSTRY

## Challenges

While the consumption of protein from non-animal sources has been a practise around the globe for centuries, the 'alternative protein industry' is essentially new. And as with any emerging industry, there are challenges. Subsequently, there are tremendous growth opportunities for those who can most efficiently and quickly tackle those challenges to address the \$290B market.

This report considers the key challenges within the alternative protein industry under three broad categories: quality, capacity, and price.



## Improving Nutrition

*Roquette and Prairie Fava are part of a \$19M-project to develop new pea and fava products, and explore amino acid deficiencies in pulse proteins. The project is one of many that includes co-investment from Protein Industries Canada.*

1

### QUALITY

When it comes to quality, the biggest issue for alternative proteins is their ability to stand up to traditional counterparts in four main areas: taste, texture, variety and nutrition. Alternative proteins have made great strides in a few notable areas such as plant-based burgers, 'nuggets' and plant-based milk. The fact that consumers can easily purchase these options in mainstream grocery stores and fast-food chains (see p 32) is a testament to the level of quality they have achieved.

But even these items have room for improvement. Plant-based burgers, for instance, have been condemned for their high levels of fat, salt and the overall number of ingredients. With consumers actively seeking out 'clean label' and non-processed foods, there is significant opportunity to increase the flavour and texture with fewer and more nutritious ingredients.



Credit: Yofit

It's one thing to turn the proteins extracted from lentils into a ground 'meat' product, but it's a considerably greater challenge to convert them into something that more closely resembles chicken, beef, fish and seafood. Similarly, alternative dairy producers are focused on mimicking the complexity and rich diversity of traditional cheese. These next iterations are currently the holy grail of the alternative protein industry, presenting an exponential opportunity for innovation and product development.



Credit: Top Tier Foods

### ***Adding Variety: Whole Cuts, Fish & Seafood, and Cheeses***

*The development of diverse and delicious plant-based products is a priority in Canada. The following projects, which have received co-investments from Protein Industries Canada, provide great examples:*

- ***Wamame Foods and Merit Functional Foods***  
*These companies will work with others to develop plant-based, non-soy alternatives to pork and Wagyu beef that match the high-quality Wagyu line in both texture and taste.*
- ***Liven and New School Foods*** *Addressing the growing demand for plant-based fish and seafood, these two companies will use pulses to develop new fish alternatives.*
- ***Lumi Foods and Crush Dynamics*** *This plant-based cheesemaker and ingredient supply company will develop novel plant-based cheeses with the taste and textures of their traditional dairy-based counterparts.*



## 2

**CAPACITY**

The true test of any new industry is how well it can scale to meet the demand of moving from niche to mainstream. This capacity challenge presents itself in a number of diverse and often connected ways in the alternative protein industry. From the amount of land and resources dedicated to growing the plant materials (legumes, etc.), to the down-stream processing required to convert raw plant materials into protein ingredients and other high value biproducts. Reports indicate that 800 mega factories will be required to produce the 30,000 metric tons of plant-based meat required to meet the global demand by 2030.<sup>12</sup>

***Increasing Capacity***

*Merit Foods and The Winning Combination are part of \$18.6M project that will see the development of a state-of-the-art protein processing facility to produce novel canola and pea protein isolates. While Ingredion and others are part of a \$25M project that will include a new facility to produce proteins with improved flavour. Both projects have received co-investment by Protein Industries Canada.*



*As one of the breadbaskets of the world, Canada is well-positioned to become a key leader in cellular agriculture and the future of food field. In order to do that, we will need different stakeholders across both the public and private sectors to work together to make that possible. From supporting primary academic research addressing key challenges in the cellular agriculture sector to grants and investors for early-stage entrepreneurs, there is a clear path and opportunity for Canada to become a cellular agriculture sector leader.*

**Ahmed Khan,**  
CellAgri

Looking beyond the more established plant-based proteins to the cellular agriculture and fermentation-based proteins, extensive research and production capacity is needed to address the demand for these emerging technologies. Many industry insiders predict that fermentation demand will outstrip capacity soon, and is already perilously low, leaving substantial room for those seeking investment opportunities in these areas.<sup>13</sup> In fact, cultivated meat could provide as much as 0.5% percent—billions of pounds—of the world's meat supply by 2030, but this will require approximately 22X the current global bioreactor capacity of the pharmaceutical industry.<sup>14</sup>

And finally, there is a demand for human resources and capital to establish the foundation of the companies and projects that are needed to fully bring this tremendous new opportunity to fruition.

## ***Fermentation***

*A fermentation ecosystem project, with co-investment by Protein Industries Canada, is beginning to address the needs for fermentation. It will see the construction of a pilot scale fermentation facility in Canada, and offer training in fermentation processing.*



## **Sustainable Food Systems**

*A unique coalition of over 80 private-public partners are working pre-competitively to develop an integrated picture of sustainability for Canada's agri-food sector. The National Index on Agri-Food Performance will be based on science-based metrics and will span four sustainability priorities: the environment, economic, health and food safety, and societal well-being.*

*Canada is serious about demonstrating sustainability credentials for the sector, to support its potential as a global food producer. Consumers, customers, investors and regulators increasingly expect food production and supply to be more sustainable and responsible. The development of the Index is designed to help Canada credibly show its track record and leadership, and mark progress on improvements going forward.*

# 3

## **PRICE**

One underlying challenge with any new industry or technology is price. Plant-based proteins to date have followed the normal trajectory of price for a new product, starting much higher than their traditional counterparts, and now reaching a state closer to parity. Many predict price parity by as early as 2023, which could significantly increase consumers' willingness to try and buy.<sup>15</sup>

It's also significant to acknowledge that the newer technologies/products from fermentation and cell-based agriculture are following the same path. Currently, cell-based products are expected to reach price parity with animal-based meats by 2030.<sup>16</sup>





# CANADIAN ASSETS

Canada has strategically aligned the resources to create an attractive environment to address the alternative protein industry's challenges of quality, production, and price.

## AGRICULTURAL CAPACITY

Canada is one of the world's largest producers of lentils and peas – two of the key ingredients used in plant-based protein – and is a significant producer of chickpea, fava bean, oat and soy.<sup>17</sup> The spotlight is also shining on other emerging plant-based proteins such as hemp, lupin, quinoa and other crops that are also grown in Canada.

## R&D EXPERTISE


Canada has world renowned research expertise and capacity given its long history in agricultural production. There are hundreds of researchers and companies working in this area across the country, and many of them are highlighted in this report.

## GOVERNMENT SUPPORT

Canada is known for its generous approach to innovation, particularly when it comes to agriculture. Ample investment into research, development and commercialization programs have seen millions of dollars applied to the alternative protein opportunity, creating attractive opportunities for ag-food corporations to participate. Canada's investment of \$173M into Protein Industries Canada to grow the plant-based proteins sector is a prime example.

*Through Canada's huge agricultural ecosystem, supportive public programs, good governance, and high-quality research institutions, the country is producing compelling foodtech startups at an impressive rate. In particular, many Canadian startups are addressing key bottlenecks and value pools in alternative proteins such as crop genetics, protein extraction, cellular agriculture, and biodiverse crops.*

**Nate Crosser,**  
Blue Horizon



*Canada's Prairie provinces are on the cusp of becoming part of an elite group of global locations where all elements are present for a thriving plant-based protein sector. The provinces are rich in sustainable energy sources, transportation connectivity, access to skilled labour, and world-class raw materials, like yellow peas. Continued investment from all levels of government, combined with forward-thinking research and development between academic institutions and industry, will ensure that Canada continues to excel at meeting the booming consumer demand for plant-based protein.*

**Dominique Baumann,**  
Managing Director for Roquette in Canada

#### COHESIVE INDUSTRY-INNOVATION NETWORKS

Canada has a strategic cohort of organizations and departments that play a role in the advancement of the alternative protein industry, providing comprehensive and coordinated facilitation of up- and downstream supply chains, human, and technical resources to meet the needs of this growing new industry. Many of these players, including the authors of this report, are mentioned in this document on page 42.

#### A FOCUS ON SUSTAINABILITY

Canada has a focus on environmental sustainability to ensure the long-term viability of the alternative protein industry across the country. Strategic targets, backed by strong R&D and incentives programs, for land and water use, GHG emissions and other factors, are key drivers of industry growth.

#### MARKET AND REGULATORY ACCESS

Canada's long history as an agricultural powerhouse has been enhanced by its exceptional regulatory environment and strong market access. Trade agreements with the world's most important regions, coupled with a robust and respected regulatory regime, allow Canadian products to safely and efficiently feed the world.

## Pioneers in Alternative Protein

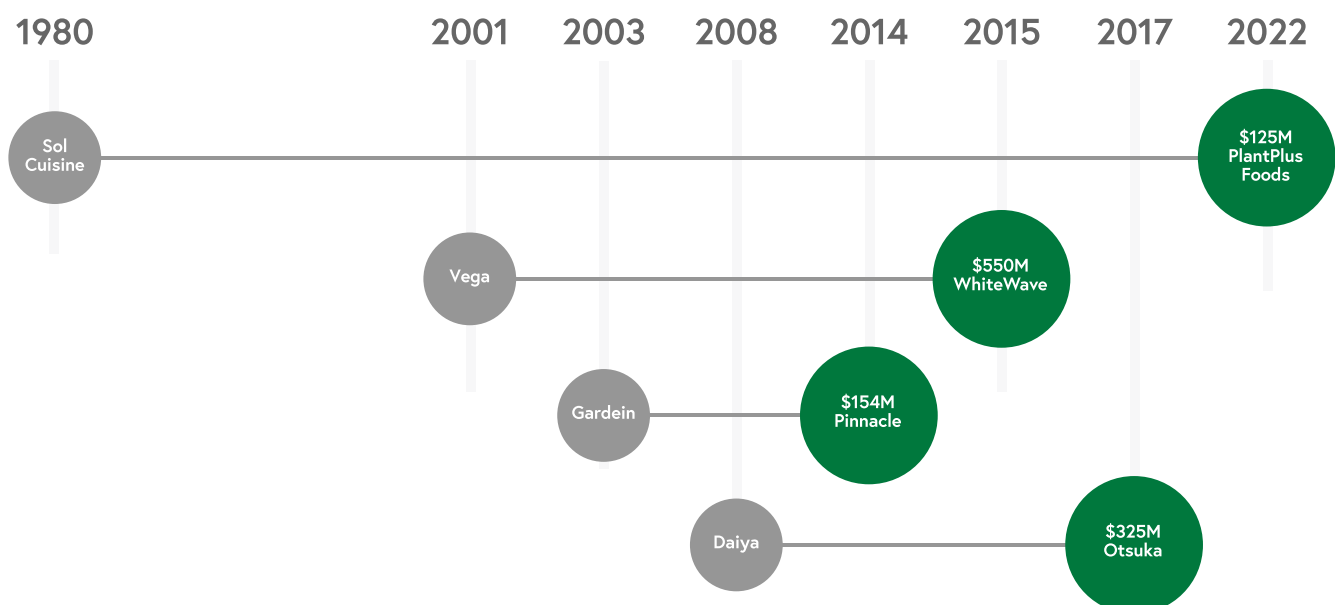
While the mainstream interest in alternative protein is relatively new, vegan and vegetarian diets have been around for centuries. Likewise, Canada has been involved in the alternative protein space long before it became mainstream.

**PRODUCTION:** Canada has been the world's largest producer of legumes for the last two decades, and has supported extensive R&D on plant varieties to expand the value and opportunity in this market.

**BRANDS:** Canada is home to some highly successful pioneers in the alternative protein industry such as Yves Veggie Cuisine, which was founded in 1985 and grew to revenues of \$35M in 2001 when it was acquired by Hain Celestial. Other Canadian companies have fared similarly with significant growth leading to substantial acquisitions, such as the following:

- **Sol Cuisine** Founded in 1980, reached \$15M in revenues by 2022 when it was acquired by PlantPlus Foods for CAN\$125M
- **Vega** Founded in 2001, reached \$100M in revenues by 2015 when it was acquired by WhiteWave for US\$550M
- **Gardein** Founded in 2003, reached \$65M in revenues by 2014 when it was acquired by Pinnacle for US\$154M
- **Daiya** Founded in 2008, reached \$80M in revenues by 2017 when it was acquired for US\$325M by Otsuka

Canadian alternative protein pioneers grew their companies to substantial revenues, creating attractive acquisition opportunities.



# CANADIAN MOVERS AND SHAKERS



## SIGNIFICANT INVESTMENT ACTIVITY

Like the rest of the world, Canada has seen an increase in investment activity in the alternative protein industry over the last two years. Although not an exhaustive list, the following represent noteworthy investments based on either the size of the capital raised and/or the novelty of the technology/company receiving investment.\*

### BELLWOOD PARTNERS & CHAMPLIN ADVISORY

In 2022, Bellwood Partners and Champlin Advisory announced that they were leading a consortium with Canadian investment and protein firms to raise \$200M in equity capital to finance the next generation of plant-based food processors.<sup>18</sup> The fund will create a pool of capital exclusively for the domestic processing sector.

### CPP Investments

CPP Investments led a Series D of \$300M into California's Perfect Day,<sup>19</sup> a start-up that utilizes fermentation in microflora to create proprietary 'flora-made' dairy protein. This follows CPP's initial \$140M C round in 2020.

\* All figures listed in Canadian dollars.

*Plant-based alternative proteins are seeing an enormous increase in popularity worldwide and are one of the fastest-growing segments of our business. Alternative proteins – those derived from plant-based sources like pulses, oilseeds and other grains – have grown thanks to many positive trends in food, including a growing global middle class that demands and can afford to consume more and higher-quality protein; trends towards healthier, clean-label products as consumers become more selective and aware of the food they eat; and a push towards sustainable food production that uses less water and fewer inputs to produce the food we need.*

**Murad Al-Katib,**  
President and CEO, AGT Food and Ingredients.



In 2021, the iconic Canadian company that has stated its goal to be the most sustainable protein company on the planet announced that its wholly owned, independent subsidiary Greenleaf Foods is planning a \$100M expansion of its tempeh production facilities in Indianapolis for plant-based products under its Lightlife brand.<sup>20</sup>



The Canadian direct to consumer food supplier, famous for its French fries, invested \$55M US in UK's Strong Roots, a plant-based frozen food company to take a minority stake in the business in December, 2021.<sup>21</sup>



NPC Ventures was spun out of Natural Products Canada in 2021 to raise a \$50M investment fund for early stage, biologically-based, Canadian start-ups. Alternative proteins will be one of a few key areas of focus for this fund, which is expected to begin transactions in late 2022.



Ontario Teachers' Pension Plan led a \$226M raise in Series B funding in 2021 in Boston's Motif FoodWorks, a food technology and ingredient development company.<sup>22</sup>



## INFRASTRUCTURE

In the last few years, there has been significant investment in infrastructure to support the processing of alternative proteins, including some activity by the following major players:



**AGT FOODS (DAVIDSON, SK)** AGT Food and Ingredients is a long-time player in the plant protein industry. AGT operates a network of grain origination, processing facilities and a short line rail system to facilitate its focus on buying and distributing canola, pulses and wheat from local producers. Recent activities include formation of a joint venture with Federated Co-op Limited to build a canola crushing facility.<sup>23</sup> The company also announced plans to build a value-added oat processing facility to produce plant-based food and animal feed ingredients.<sup>24</sup>



**CARGILL (VARIOUS LOCATIONS)** Cargill, the multinational agri-food corporation and one of the largest producers of beef and poultry products in the world, has been an active investor in plant-proteins. Recent Canadian activities include the announcement of a new canola processing facility in Regina, SK, as well as upgrades and expansion to its canola facilities in Camrose, AB, and Clavet, SK.<sup>25</sup>



**INGREDION (VANSCOY, SK)** Ingredion, a multinational corporation has made significant investments in plant-based protein around the world. In Canada, the company is most active in Saskatchewan through their acquisition of Verdient Foods, an ingredient producer backed by Hollywood power couple, James and Suzy Cameron. The 160,000 metric-ton facility in Vanscoy is the largest organic pea protein fractionation facility in North America.



**LOVINGLY MADE INGREDIENTS (CALGARY, AB)** Lovingly Made Ingredients entered Canada in 2019 to gain access to the lentils and other ingredients needed in production of their plant-based foods. In the 33,000 sq ft facility, they have a capacity to produce 18,000 tons of protein each year.<sup>26</sup>



**MERIT FUNCTIONAL FOODS (WINNIPEG, MB)** Merit, an ingredient producer, opened a new 94,000 sq ft plant to process pea (Peazazz and Peazac) and canola (Puratein) proteins.<sup>27</sup> Bunge, a multinational agri-food company, invested \$22.8M in 2020, taking a minority stake in the company.<sup>28</sup> In 2021, Merit and its parent company, Burcon, began working with Nestlé on food development.<sup>29</sup>



**MORE THAN PROTEIN (BOWDEN, AB)** More Than Protein Ingredients broke ground on a \$100M plant-based, wet fractionation facility that is scheduled to be completed in 2023.



**ROQUETTE CANADA (PORTAGE LA PRAIRIE, MB)** Roquette, the multinational ingredient company from France, officially opened the world's largest pea protein plant in 2021<sup>30</sup> with over \$600M spent on the 200,000 sq ft plant with the capacity to process 125,000 tons of yellow peas per year.

## IPOs

Canadian companies and Canadian stock exchanges saw a high level of activity in the last 24 months. In fact, after Beyond Meat made headlines with its IPO on the Nasdaq stock exchange in 2019, Canada was home to the 2nd and 3rd IPOs by plant-based companies with The Very Good Butcher and Modern Meats, respectively. The following highlights Canadian IPO activity from companies focused on alternative protein:



### **BOOSH PLANT BASED FOODS INC. (VANCOUVER, BC) (CSE: VEGI)**

Boosh Foods is owned by Boosh Plant-Based Brands and went public in 2021, followed by a flurry of distribution deals and acquisitions to build out its vegan ready to eat line.<sup>31</sup>



**CULT FOOD SCIENCE CORP (VANCOUVER, BC) (CSE: CULT)** CULT is an investment platform focused on cellular agriculture that went public in early 2022. It aims to advance the development of novel technologies, and to provide individual investors with exposure to innovative start-up, private or early-stage cultivated meat, cell-based dairy, and other cultured food companies around the world.



### **EAT & BEYOND GLOBAL HOLDINGS INC. (VANCOUVER, BC) (CSE: EATS)**

Eat & Beyond went public in 2020 on the CSE and followed up with the Nasdaq shortly after. The holding company offers an international portfolio of plant-based companies including Canadian entities The Very Good Food Company, Nabati Foods, and GreenSpace Brands.



### **MODERN PLANT-BASED FOODS INC. (VANCOUVER, BC) (CSE: MEAT)**

Modern Plant-Based Foods (Modern Meats) went public in 2021. It was the world's third plant-based meat producer to go public and the first to be run by women.<sup>32</sup>



### **NABATI FOODS GLOBAL INC. (EDMONTON, AB) (CSE: MEAL)**

Nabati went public in late 2021. The company offers dairy-free cheesecakes, cheese alternatives, plant-based egg alternatives and plant-based meats.<sup>33</sup> They are part of the Eat & Beyond portfolio of companies.



**ODD BURGER (LONDON, ON) (TSXV: ODD)** Odd Burger (formerly Globally Local) went public in 2021 and was the first vegan fast-food chain to have a public offering. Their 'smart kitchens' use state of the art technologies to produce efficient and ethical products and services.<sup>34</sup>



**PLANT VEDA FOODS LTD. (SURREY, BC) (CSE: MILK)** Plant Veda is a plant-based dairy company with proprietary products such as a vegan lassi and 'plant gurt'. They began trading on the CSE in 2021.<sup>35</sup> The company is developing a production facility capable of supporting \$10M+ in annual sales.



**PLANTING HOPE COMPANY (VANCOUVER, BC) (TSXV: MYLK)** The female-led producer of the world's first commercial sesame milk and other plant-based products went public in late 2021.<sup>36</sup>



**PLANTX LIFE INC. (VANCOUVER, BC) (CSE: VEGA)** PlantX went public in 2021 following an oversubscribed \$11.5M financing at the end of 2020.<sup>37</sup>



**THE VERY GOOD FOOD COMPANY (TSXV: VERY)** The VERY company delivers plant-based products under its Very Good Butchers brand, and is the world's second plant-based company to go public.



**VEGANO FOODS<sup>38</sup> (VANCOUVER, BC) (CSE: VAGN)** Canada's first 100% plant-based meal box provider raised US\$4.2M in an oversubscribed Series A in 2021.



**VEJII HOLDINGS LTD. (KELOWNA, BC) (CSE: VEJI)** The online vegan marketplace went public in 2021. It offers a streamlined approach to onboarding brands and products that are plant-based, helping them reach a targeted vegan-friendly audience.<sup>39</sup>



**ZOGLO'S INCREDIBLE FOOD CORP. (TORONTO, ON) (CSE: ZOG)** The plant-based company closed a \$6.75M non-brokered private placement to raise the capital for its public listing in 2021.<sup>40</sup>

## ACQUISITIONS

Canadian companies have been on both ends of the acquisition process in the last four to six quarters.



**ABOVE FOOD (REGINA, SK)** Above Food uses regenerative farming practices and plant-based proteins in its consumer brands, including Farmer Direct Organic, Only Oats, Culcherd and Eat Up! It also runs Purely Canada Foods, which supplies plant proteins and plant-based ingredients. In 2022, Above Food acquired Sonic Milling Systems, which develops processing techniques for plant-based ingredients and products.<sup>41</sup>



**BOOSH PLANT-BASED BRANDS INC. (VANCOUVER, BC) (CSE: VEGI)** Boosh acquired four plant-based brands in 2021 and the first part of 2022, including Vegan Canteen, Salt Spring Harvest<sup>42</sup>, Pulse Kitchen<sup>43</sup>, and Beanfields Inc.<sup>44</sup> The acquisitions helped the company expand from frozen plant-based meals to include plant-based cheese, paté and bean tortilla chips.



**COPPER BRANCH (DORVAL, QC)** In May 2021, Canada's Copper Branch, the largest vegan restaurant brand in the world, was acquired by Foodtastic, the Canadian franchisor of multiple restaurant concepts. At time of acquisition Foodtastic was planning over 40 new locations for the plant-based chain.<sup>45</sup>



**FRESH RESTAURANTS (TORONTO, ON)** In late 2021, Recipe Unlimited Corporation – Canada's largest full-service restaurant company – acquired Plant Powered Ventures Ltd., which developed and previously operated the original five Fresh-branded plant-based restaurants in Ontario.<sup>46</sup>



**THE FUTURE OF CHEESE INC. (TORONTO, ON)** Organic Garage, an independent organic grocer owned by Oragin Foods, acquired Canadian plant-based cheesemaker Future of Cheese Inc. in 2021.<sup>47</sup>



**SOL CUISINE (VANCOUVER, BC AND MISSISSAUGA, ON)** The Canadian pioneer in plant-based foods with over twenty years in business was acquired by PlantPlus Foods for approximately US\$100M in 2021.<sup>48</sup>

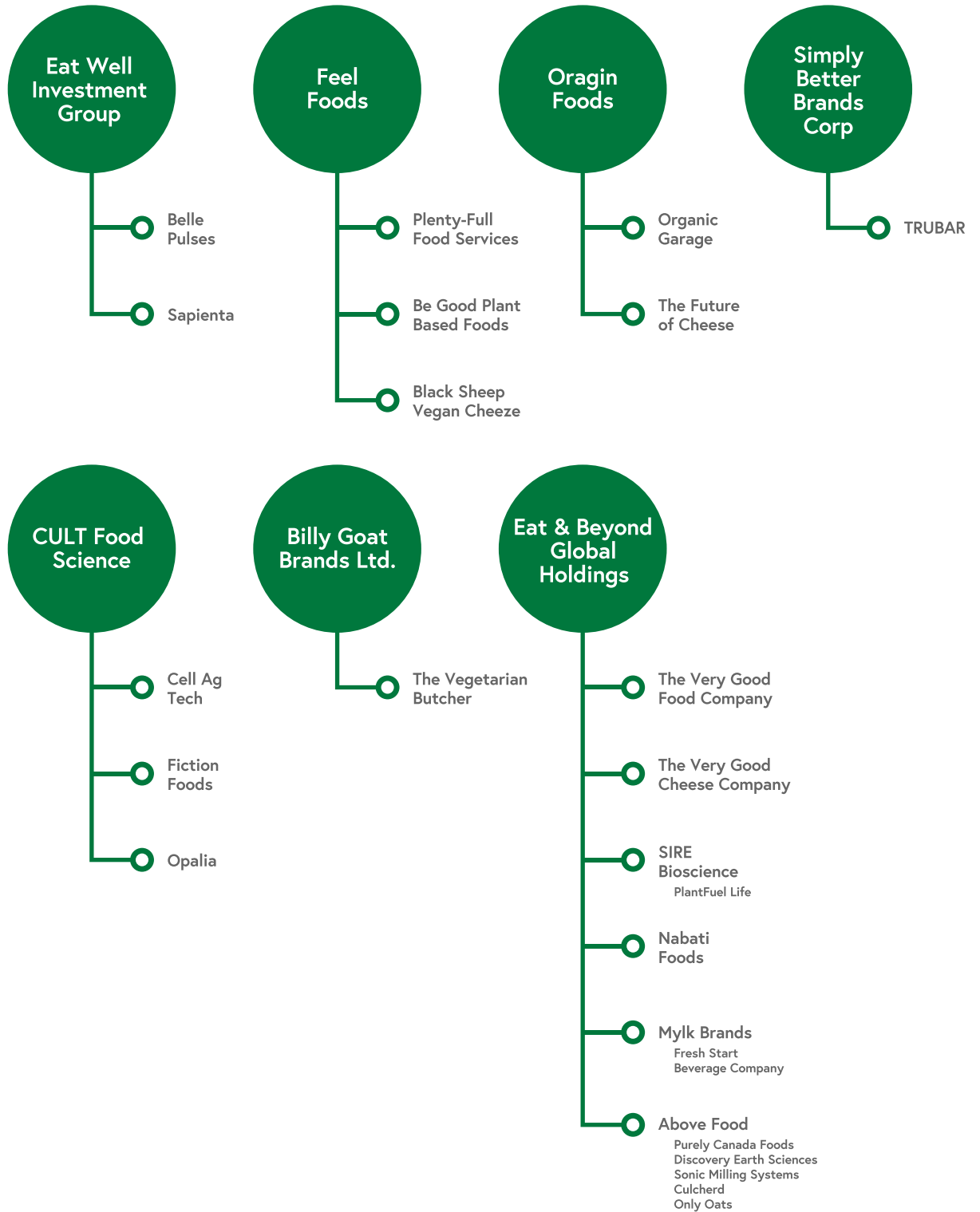


**YOFIIT (TORONTO, ON)** YoFiit, a premium chickpea milk brand was acquired by Global Food and Ingredients (GFI) in 2022.<sup>49</sup> YoFiit is known for its high protein plant-based milk made with chickpeas, pea protein and flax oil that contains 10 grams of protein per serving and 1,000 mg of omega 3. It is expanding its product line through involvement in a project with Roquette Canada Ltd. and Avena Foods Limited, with co-investment from Protein Industries Canada.<sup>50</sup>



## Early Conglomerates

Canadian holding companies are appearing in increasing number and investing in the alternative proteins space by acquiring brands and companies that can service those brands up and down the value chain.



\*Many of these corporations also have extensive holdings in international companies not represented here.



# INNOVATORS TO WATCH

One of the most promising aspects of any new industry is the velocity of the development of new products and technologies. Canada is home to a number of exciting start-ups that are creating innovative ingredients, products and solutions related to alternative proteins. These companies are just some of the emerging Canadian companies that will no doubt be global players in the future.



**ALGI FOODS (KINGSTON, ON)** Algi is an early stage company with direct to consumer snack bars featuring alternative protein, spirulina algae, under their IMPACT brand name.<sup>51</sup>



**ALTERNATIVE KITCHEN (BROSSARD, QC)** Alternative Kitchen has a broad line of consumer products including cheeses, spreads and an extensive selection of cold-cuts such as ham and mortadella. Many of their products contain only plant-based proteins, although some contain egg white powder.<sup>52</sup>



**ARDRA (TORONTO, ON)** Ardra uses fermentation to develop a range of ingredients for the food and personal care industries, including heme, a key element to the 'meaty' flavour in alternative protein products. They recently received funds through a cellular agriculture program offered by the Canadian Food Innovation Network and Ontario Genomics.<sup>53</sup>



**BETTER HEMP (PORTAGE LA PRAIRIE, MB)** Better Hemp processes and sells a variety of hemp superfood products in bulk and retail to wholesalers, distributors and businesses worldwide.<sup>54</sup>



**BIG MOUNTAIN FOODS (VANCOUVER, BC)** Big Mountain Foods is a plant-based food company developing alternative proteins from various ingredients. It recently received the Nexty award for its Lion's Mane Mushroom Crumble and has developed a line of fava-based tofu. The company expanded into a 70,000 sq ft facility in 2021 to help meet production for its over 400 listings across Canada and the US.<sup>55, 56</sup>



**BIOFECT INNOVATIONS (TORONTO, ON)** Biofect Innovations use microorganisms and fermentation technology to create ion-binding proteins, which are one of the factors behind the 'meaty' taste of meat. They were accepted in the Berlin-based ProVeg incubator focused on alternative protein start-ups.<sup>57</sup>



**BLUE SKY HEMP VENTURES (SASKATOON, SK)** Blue Sky Hemp Ventures is an industrial hemp biorefinery that produces foods (proteins, hemp seed oil, hulled hemp), cannabinoid extracts (CBD, CBN, CBG) and industrial products (fibre and hurd). They are currently scaling up production for new products, including a high smoke point hemp seed oil with an exceptional essential fatty acid, as well as a 70% hemp protein concentrate with a neutral color and taste profile, and improved dispersion qualities.<sup>58</sup>



**BOTANECO (CALGARY, AB)** Botaneco uses a unique technology to isolate functional natural ingredients from oilseeds for the food, feed and personal care markets. They were an early participant in a project co-invested by Protein Industries Canada that validated a canola-based protein as an effective ingredient in salmon aquaculture feeds.<sup>59</sup>



**CANADA PROTEIN INGREDIENTS (LINDSAY, ON)** Canada Protein Ingredients uses a unique method to produce clean label, high quality soy protein ingredients. The company is part of a \$23.7M-project with co-investment from Protein Industries Canada, which aims to increase soy-based protein production in Canada.<sup>60</sup>



**CANPRO INGREDIENTS (ARBORFIELD, SK)** CanPro Ingredients produces plant-based feed ingredients relying on 5,000 acres of farmland and its network of 500 local farmers. They convert forage, grain and oilseed crops into non-GMO and organic feed ingredients.<sup>61</sup>



**CASCADIA SEAWEED (SIDNEY, BC)** Cascadia Seaweed, BC's largest seaweed farmer, entered into an agreement with Modern Plant-Based Foods Inc. in 2021 to develop and create a variety of plant-based products incorporating cultivated seaweed under Cascadia's CPG brand, Kove Ocean Foods.<sup>62</sup>



**CELL AG TECH (TORONTO, ON)** CELL AG TECH is a cellular agriculture company focused on developing fish and seafood alternatives. They were selected as semi-finalists in the \$15M XPRISE Feed the Next Billion competition in 2021, and were recipients of a new cell ag funding program in Ontario through the Canadian Food Innovation Network and Ontario Genomics.<sup>63</sup>



**CHICKAPEA (COLLINGWOOD, ON)** Vegan pasta maker, Chickapea, raised \$9.6M in a series C round led by Canadian investors like InvestEco, District Ventures, and Export Development Canada. They are also two-time recipients of non-dilutive capital through Natural Products Canada's commercialization programs.<sup>64</sup>



**C-MERAK INDUSTRIES (TISDALE, SK)** C-Merak focuses on faba beans and has begun construction on a new milling facility to create protein concentrates, flours and other food ingredients from locally sourced faba beans and oats. The plant is scheduled to open in late 2022.<sup>65</sup>



**CRUSH DYNAMICS (SUMMERLAND, BC)** Crush Dynamics (formerly Winecrush) has developed a unique food ingredient from derivatives of the winemaking process that provide flavour enhancement and preservation qualities to plant-based foods. It has received capital from various entities.<sup>66</sup>



**CVICTUS (CALGARY, AB)** C̄victus uses a complex technology of enhanced hydrogen recovery to produce low-cost, low-carbon methanol to ferment single cell protein as a non-photosynthetic protein substitute for soybean and fishmeal in animal feed. They recently received \$10M from the Clean Resource Innovation Network.<sup>67</sup>



**DENOVA (HALIFAX, NS)** DeNova is a fermentation-focused company that creates alternative protein ingredients using a feedstock derived from greenhouse gases and underutilized hydrocarbons. The company has received over \$7M in the last 18 months from various public and private sources, including Natural Products Canada.<sup>68</sup>



Credit: Roquette



**EARTH'S OWN FOOD COMPANY (VANCOUVER, BC)** Earth's Own makes oat- and nut-based milk alternative creamers, milks, butters and spreads, which are available throughout a broad range of Canadian grocery and other retail outlets.<sup>69</sup>



**EARTHLI (HALIFAX, NS)** Earthli produces sustainably grown plant-based superfood products based on hemp grown in Atlantic Canada, which they laud for its mild flavour profile.<sup>70</sup>



**EGGCITABLES (HALIFAX, NS)** Eggcitable began in 2018 as part of a student pitch competition and has been on a roll ever since. The company offers a chickpea-based egg alternative, and has been quickly developing and growing with support from various grants and funds such as the Earth's Own challenge.<sup>71</sup>



**EVOLVED (KITCHENER, ON)** Evolved (formerly Caro Meats) is a spin-out of McMaster University, and is one of a few exciting Canadian companies developing protein through cellular cultivation technologies. The company has devised a way to create meat by stacking thin layers of muscle and fat cells cultivated in a lab setting, in a process inspired by the method used to create tissue for human organ transplants. They were recent recipients of a new cell ag funding program in Ontario through the Canadian Food Innovation Network and Ontario Genomics.<sup>72, 73</sup>



**THE FUTURE OF CHEESE INC. (TORONTO, ON)** Future of Cheese is a plant-based dairy company focused on cheese and butter. It recently received FDA approval for its products in the US, and currently has a line of butters and brie, with additional product development in the pipeline.<sup>74</sup>



**GRAINFRAC (EDMONTON, AB)** GrainFrac's unique technology helps create sustainable, affordable, and superior plant-protein ingredients. The company received funding through Natural Products Canada's Access to Talent program, and is a partner in a \$4.3M-project with Ripple Foods and Tomtene Seed Farms, with co-investment from Protein Industries Canada, to develop new, high-protein pulse-based ingredients for the non-dairy beverage market.<sup>75</sup>



**GRIFFITH FOODS LTD (TORONTO, ON)** Griffith specializes in food ingredients and is a partner in a project with Persall Fine Foods Co. and K2Milling.<sup>76</sup>



**HUMBLE SEEDZ (ORANGEVILLE, ON)** Humble Seedz has a line of plant-based dips and cream cheeses made from Canadian grown crops such as sunflower seeds and buckwheat and buckwheat that are free of nuts, soy, and oil.<sup>77</sup>



**JUNO FOOD LABS (WINNIPEG, MB)** Juno makes plant-enhanced meat products under their BUMP brand.<sup>78</sup>



**JUSTGO SMOOTHIE (VANCOUVER, BC)** Justgo produces six smoothie blend powders with various vegetable, fruit and grain ingredients including protein ingredient, amaranth.<sup>79</sup>



**JUSTOS PLANT-BASED DIPS (VICTORIA, BC)** Justos produces plant-based dips including ranch and tzatziki, which replace dairy with vegan, alternative protein ingredients.<sup>80</sup>



**K2MILLING (TOTTENHAM, ON)** K2Milling is an artisanal cold flour that produces a variety of flours from grains and other plant proteins.





**LITA'S MEXICAN FOODS (VANCOUVER, BC)** Lita's develops authentic Mexican foods that are plant-based using pinto beans, jackfruit and enoki mushrooms to create tortillas, taco kits and taquitos.<sup>81</sup>



**LIVEN PROTEINS (TORONTO, ON)** Liven develops animal-free protein ingredients that aim to improve the taste, texture, and cooking experience of plant-based foods. They are part of a \$1.9M-project with New School Foods, with co-investment by Protein Industries Canada.<sup>82</sup>



Credit: Very Good Food Company



**LUMI FOODS (VANCOUVER, BC)** Lumi Foods (formerly Blue Heron Creamery) develops proprietary plant-based cheeses, butters, and other plant-dairy and alt-dairy products. Involved in a \$10.8M-project with Save-on-Foods and Crush Dynamics, with co-investment from Protein Industries Canada, Lumi aims to expand their products, and develop microbial starter cultures for the cultured vegan/plant-based cheese sector.<sup>83</sup>



**MID-DAY SQUARES (LACHINE, QC)** Mid-Day squares markets responsible indulgence with plant-based treats made with hemp protein concentrate in the three different bars.<sup>84</sup>



**MORE THAN PROTEIN INGREDIENTS (CALGARY, AB)** More Than Protein uses yellow pea protein as the main basis for their products, which include protein concentrates and isolates, starch and fibre.<sup>85</sup>



**MYO PALATE (TORONTO, ON)** Myo Palate has a mission to produce real meat without raising whole animals. The company uses cellular cultivation technologies to grow samples of animal cells in fine-tuned conditions.<sup>86</sup>



**NABATI FOODS (EDMONTON, AB)** Nabati Foods has a strong line-up of alternative protein with a focus on their proprietary cheese and cheesecakes, as well as chicken, beef and fish alternatives. In 2021, they went public, significantly expanded their retail distribution, and introduced a plant-based egg product.<sup>87</sup>



**NÄÄK (MONTREAL, QC)** Näak is a nutrition company focused on alternative protein for athletes. Their bars, waffles and protein powder use a range of proteins including nuts, soy and crickets.<sup>88</sup> They have received funds from Natural Products Canada's Commercialization Programs as well as investment from High Flyers Capital.





**NEW PROTEIN GLOBAL (VAUGHAN, ON)** New Protein Global has developed a proprietary process to produce a clean-label, hexane-free soy protein, BioPur™. Products include soy protein isolates, soy protein powders, textured soy proteins, and soy flours. The company will be deploying this technology at a commercial-scale soy protein plant that it will build in the fall of 2022, the first such facility in Canada.<sup>89</sup>

**NEW/SCHOOL**

**NEW SCHOOL FOODS (TORONTO, ON)** New School Foods has been selected as a semi-finalist in the XPRIZE's Feed The Next Billion Competition. They are developing plant-based seafoods and are part of a \$1.9M-project with Liven Proteins.<sup>90</sup>



**NO MEAT FACTORY (SURREY AND COLDSTREAM, BC)** The No Meat Factory develops a range of plant-based products including nuggets, burgers, meatballs and seafood alternatives.<sup>91</sup>



**NOBLE JERKY (BURNABY, BC)** The jerky manufacturer has seen explosive growth after switching exclusively to a vegan product. Key activities include a major distribution deal with Walmart, and expansion into the Asian market through Sam's Club China.<sup>92</sup>

**NOBLEGEN**

**NOBLEGEN (PETERBOROUGH, ON)** Noblegen creates protein and other ingredients using proprietary fermentation processes and the naturally occurring *Euglena gracilis*, a microorganism that provides a rich source of the 9 essential amino acids and a good source of healthy omega-3 fatty acids.<sup>93</sup>



**NOVAGEVITY (HALIFAX, NS)** Novagevity, the nutrition company behind the plant-based meal replacement beverage 'Sperrri', has attracted capital from various Canadian agencies, including Natural Products Canada. Sperrri launched in 2021 and quickly gained distribution deals after it took the top prize at LaunchPad, the Canadian Health Food Association's prestigious award for new products.<sup>94</sup>



**NUTS FOR CHEESE (LONDON, ON)** Nuts For Cheese has a line of plant-based soft cheeses and butters made primarily from cashews and other natural, organic ingredients. The award-winning company was named the 2022 Canadian Organic Innovator of the Year.<sup>95</sup>



**OAT CANADA (TORONTO, ON)** Oat Canada launched a zero-sugar oat-based alternative dairy product in 2020, and recently joined Roquette and co-investor, Protein Industries Canada, in a \$4.3M-project to develop more oat-based beverages.<sup>96</sup>



**PERSALL FINE FOODS CO. (WATERFORD, ON)** Persall Fine Foods provides non-GMO cold oils, as well as vinegars, and raw products such as beans and lentils under their Pristine Gourmet brand. They are partners in a project with Griffith Foods Ltd and K2Milling with co-investment from Protein Industries Canada.<sup>97</sup>



**PHYTO ORGANIX (CALGARY, AB)** Phyto Organix is a processor, developer and distributor of conventional and organic plant-based protein. They are planning a state-of-the-art plant-protein facility using wet plant protein fractionation, sourcing yellow peas in southern Alberta.<sup>98</sup>



**PROTEIN ISOLATE PLANT (PIP) International (Lethbridge, AB)** PIP's innovative patented process delivers a highly functioning protein derived from yellow peas called UP.P™ Protein, which is free from additives, has a neutral taste and colour, and a smooth texture.<sup>99</sup>



**PRAIRIE FAVA (GLENBORO, MB)** Prairie Fava supplies high-quality, healthy fava beans, fava ingredients and fava consumer products. They have an exclusive license in North America for a first ever fava bean variety with a low vicine/covicine content, which provides a competitive advantage for fava marketed into the food industry.<sup>100</sup>



**PRAIRIE TIDE CHEMICALS (SASKATOON, SK)** Prairie Tide is focused on flax-based products for consumers and the food industry. The product line features thickeners, gut health, supplements and snacks.<sup>101</sup>



**PRESTER FOODS INC. (REGINA, SK)** Prester has a line of products that includes cereal, pasta and rice developed from a mix of Saskatchewan-grown pulses under their Vegscrumptious brand.<sup>102</sup>



**RAINFED FOODS (TORONTO, ON)** Rainfed Foods uses proprietary technology to transform under-utilized climate resilient crops like millets into CPG products and ingredients for both B2B and B2C. In 2022, they are planning the launch of a high protein millet-based milk alternative that replicates dairy in nutrition and functionality while being top 8 allergen-free and boasting a clean label.<sup>103</sup>



**SAINT MICHAEL FOODS (VANCOUVER, BC)** Saint Michael Foods launched their buckwheat-based 'mylk' product in 2021, adding to their award-winning line of dairy-alternative gelatos under the BUCK™ brand. Their newest product is BUCK Nutra™, a unique functional drink powder with bioactive peptides for easy digestibility.<sup>104</sup>

Credit: Saint Michael Foods





**SAVE DA SEA (VICTORIA, BC)** Save Da Sea has been making steady progress with their entry into the plant-based seafood market. Their vegetable and seaweed-based smoked salmon alternative is available in over 70 stores across Canada, and they are developing additional fish and seafood alternative products for the retail and food service industries.<sup>105</sup>



**SEEVA (CALGARY, AB)** Seeva develops products based on pumpkin seed protein, including pumpkin protein powder as well as elixirs blended with mushroom powders and other herbs and spices.<sup>106</sup>



**SMALLFOOD INC. (HALIFAX, NS)** Smallfood is a microbial ingredient company that uses a proprietary biomass fermentation process to extract premium food ingredients such as proteins, omega-3, lipids, and antioxidants for sustainability-focused, plant-based food and supplement brands. In 2022, they were a semi-finalist in the XPrize competition (see Terra Bio below), and received funds from Natural Products Canada to continue the development of sustainable ingredients derived from microbes.



**SONIC MILLING (SASKATOON, SK)** Sonic Milling's hydrodynamic-cavitation technology uses water and pressure to create microscopic air bubbles capable of breaking apart a range of ingredients like pulses, fruits and vegetables into clean label liquids and sauces. The company has deployed the technology to produce oat concentrate, oat beverage and oat creamer for several North American brands and retailers.<sup>107</sup>



**SPREAD'EM KITCHEN (RICHMOND, BC)** Spread'Em has a line of alternative dairy cheese products including cream cheese style and marinated feta from an ingredient list that includes cashews, coconut, and vegetables.<sup>108</sup>



**TERRA BIO INC. (TORONTO, ON)** Terra Bio is focused on producing the next generation of ingredients, including plant-based proteins and fermentable sugars from upcycled agri-food byproducts like spent grains. In partnership with SmallFood Inc. and others, they are working on a fishless fillet that was selected as a semi-finalist in the prestigious XPRIZE Feed the Next Billion Award in 2021.<sup>109</sup>



**THE FUTURE OF CHEESE INC. (TORONTO, ON)** The Future of Cheese is a plant-based cheesemaker owned by Oragin Foods. It launched its product in 2021 with a focus on both retail, restaurant and food service in both Canada and the US, where it received FDA approval in April 2022.<sup>110</sup>





**TMRW FOODS (VANCOUVER BC)** TMRW Foods is a plant-based company with a line of burgers, nuggets, sausage and 'cheese' products. The company's leadership has a few notables, including former Disney, Daiya, Fresh and Smart Sweets execs and founders. In 2021 they received \$2.5M in capital and went on to ink deals with Loblaws and Walmart for over 1000 retail locations in Canada.<sup>111</sup>



**TOP TIER FOODS (VANCOUVER, BC)** Top Tier Foods is the company behind the world's first plant-based Wagyu beef, as well as other Asian-inspired favourites such as sushi quinoa, and plant-based caviar. Top Tier is the parent company of Wamame Foods, part of a \$7.6M-project to develop plant-based, non-soy alternatives to pork and Wagyu beef.<sup>112</sup>



**ULIVIT (SASKATOON, SK)** ulivit is a plant-based CPG company that offers 'superfood' bars made from lentils, chickpeas, dry peas and beans. They are currently partners on two projects with AGT Foods, with co-investment from Protein Industries Canada, to assess and utilize novel protein ingredients in new product formulations.<sup>113</sup>



**YOSO (CAMBRIDGE, ON)** Yoso develops and markets a line of plant-based yogurts, smoothies, bars and dips with a focus on probiotics and nutrition.<sup>114</sup>



**YUMASOY (VANCOUVER, BC)** Yumasoy produces ready-to-eat marinated soy strips called Om Noms with unique flavours, including Teriyaki, Mediterranean herb, Original and Thai yellow curry.<sup>115</sup>



**WHITEBOARD FOODS (OTTAWA, ON AND GATINEAU, QC)** Whiteboard Foods uses plant-derived biomaterials as scaffolds to develop cell-cultured and plant-based food products.<sup>116</sup>

# OTHER KEY INDICATORS



## Alternative Proteins Are Everywhere

One of the most telling signs of the staying power of the alternative protein industry is the fact that mainstream grocery and other retail outlets, as well as restaurants and food service companies, have adopted it broadly.

## Retail and Grocery

Several high-profile global brands can now be found on grocery store shelves. In addition, Canadian-owned grocers are developing and selling more plant-based items themselves. A few notable leaders in the alternative protein space are outlined below:

### Costco Wholesale Canada

One of Canada's largest grocery retailers, Costco has introduced new plant-based products such as those from Beyond Meat, Nabati and Hungry Planet, and offers a variety of plant-based snacks and ingredients, many of which are made in Canada.<sup>117</sup>

### Farm Boy

Farm Boy is an Ottawa-based retail chain owned by Sobeys' parent company Empire. It offers plant-based products, including over thirty plant-based dairy products. Many are private label items sold under the Farm Boy brand.<sup>118</sup>

### Federated Co-operatives Limited

FCL has supported a number of Canadian plant-based brands in entering the market. In addition, they partnered with Mera Food Group to produce a new Co-op Gold Pure Oat Beverage, and have announced a \$2B investment in an Integrated Agriculture Complex including a \$360M canola crushing facility as a joint venture with AGT Foods.<sup>119</sup>

### Loblaw Companies Limited

As of December 2021, Loblaw's President's Choice brand had introduced more than 110 PC® Plant Based products. The grocer also sells a broad selection of plant-based products from other brands, including Canadian companies like Lightlife, The Very Good Butchers, Sol Cuisine and Daiya, as well as international brands.<sup>120</sup>

### METRO

METRO is a leader in the food and pharmacy industry in Québec and Ontario and operates a network of more than 950 food stores across the two provinces. METRO offers a large array of plant-based products, including Beyond Meat and Lightlife brands. It has also introduced its own plant-based range under the Life Smart Plant-Based brand.<sup>121</sup>

### Organic Garage

Organic Garage is an independent organic grocer that acquired Toronto-based Future of Cheese Inc. in 2021.<sup>122</sup>

### Save-On-Foods

Operating in Western Canada, Save-On-Foods offers a wide selection of plant-based products, including plant-based meats, milks, cheeses, butter, yogurt, ice cream and eggs. They have also partnered on a project with Lumi and Crush Dynamics (formerly Winecrush) to help increase the profile of plant-based cheeses.<sup>123</sup>

### Sobeys Inc.

Sobeys is the second-largest grocer in Canada with more than 1,500 stores nationwide. It was the first grocery retailer in Canada to offer Beyond Meat's popular Beyond Burger and Impossible Foods' Impossible Burger. It has also introduced its own products including Compliments Plant-Based Chickenless Breaded Strips and Compliments Balance Soy Burgers.<sup>124</sup>

### Walmart Canada

Walmart offers a large selection of plant-based alternatives in over 400 stores nationwide, including Canadian brands Sol Cuisine, Noble Jerky, Zoglo's Incredible™, Yves Cuisine, Lightlife, and Big Mountain Foods.<sup>125</sup>





## Food Service and Restaurants

Dozens of food services companies are adding alternative proteins to their offerings. A few of the prominent leaders and newsmakers are outlined below:

### A&W

The first (2018) national burger restaurant in Canada to serve the Beyond Meat burger, which they now claim as one of their top-selling burgers. This was followed by another first in 2019 with the offer of Lightlife's Plant-Based Nuggets. In August 2021, they debuted Beyond Meat Nuggets in Canada at all locations for a limited time.<sup>126</sup>

### Aramark Canada

Aramark, an international food service company with extensive penetration in academic and industrial institutions across Canada, offers a 'Plant Powered' program with over 300 new plant-based recipes, and reduction of red meat in recipes by 12% on average.<sup>127</sup>

### Boston Pizza

In 2021, Boston Pizza introduced a Lightlife Plant-Based Burger and a pizza featuring Field Roast Plant-Based Italian Sausage Crumbles.<sup>129</sup>

### Compass Group

Canada's leading food service provider, Compass Group Canada, has adopted a 'Plant-Forward approach' to menus, a key driver in achieving their climate target of Net Zero by 2050. Compass also has an exclusive national partnership with Copper Branch with an option to open up to 50 locations over the next 10 years.<sup>131</sup>

### Booster Juice

Canada's largest juice and smoothie chain, Booster Juice, began offering Field Roast™ plant-based products in 2022 at 410 locations.<sup>128</sup>

### Burger King

In 2021, Burger King was the first quick-service restaurant in Canada to offer the Impossible Foods patty in the Impossible Whopper.<sup>130</sup>

### Copper Branch

A Canadian vegan restaurant chain with over 45 locations, Copper Branch was acquired in 2021 by Foodtastic, a franchisor of multiple restaurant concepts including Second Cup. They announced plans to open 40 new locations in the first 36 months of ownership.<sup>132</sup>

*A common brand mentioned throughout is Lightlife, a vegan line owned by Greenleaf Foods, SPC, a wholly owned, independent subsidiary of Canadian protein company Maple Leaf Foods Inc.*

Credit: LightLife Foods



### Dana Hospitality

Dana Hospitality is a national company focused on Canadian food and ingredient sourcing. It has participated in Humane Society International/Canada's Forward Food program, and has committed to transitioning 20% of its animal-based protein meals into plant-powered meals at select locations.<sup>133</sup>

### Fresh Restaurants

Fresh is Canada's oldest plant-based restaurant chain. Based in Toronto, it has been operating since 1999 and has seven locations throughout Ontario. It is owned by Plant Powered Ventures, which was acquired in 2021 by Recipe Unlimited Corporation, Canada's oldest full service restaurant company.<sup>134</sup>

## ***Humane Society International/Canada helps food industry adopt plant-based menus***

*One of the factors behind the increase in plant-based offerings has been a unique program by Humane Society International/Canada. Their Forward Food program is an innovative culinary resource that helps the food industry and food service professionals increase their plant-based menu options. Many companies have taken the Forward Food Pledge – a commitment to transition 20% of current, overall menu options to plant-based within approximately two years.*

### Gordon Food Service

The largest family operated distributor in North America distributes products from BC-based Modern Plant-Based Foods Inc.<sup>135</sup>

### Harvey's

In 2020, the Canadian burger chain, Harvey's, began offering Lightlife burger as an addition to their original (since 1999) Harvey's Veggie Burger at more than 250 locations.<sup>136</sup>

### IKEA Canada

IKEA Canada introduced its Veggie Ball alternative to its iconic meatballs across the country in 2021.<sup>137</sup>

### KFC Canada

In 2020, KFC Canada introduced Plant-Based KFC Lightlife sandwiches in all locations across Canada.<sup>138</sup>



### Mary Brown's

Mary Brown's is a Canadian fast-food restaurant famous for its fried chicken. In 2022, they introduced Lightlife plant-based tenders and snack sandwiches in two flavour profiles in over 200 locations.<sup>139</sup>

### Odd Burger

Odd Burger Corporation launched Canada's first vegan fast-food restaurant in 2017 and plans to have 20 restaurants operational in 2022 in the US and Canada.<sup>141</sup> In 2021, it made a major move to accelerate expansion by announcing significant loans to eligible franchisees through the Canada Small Business Financing Program.<sup>142, 143</sup>

### Pizza Hut

In 2021, Pizza Hut added Beyond Italian Sausage Crumbles to its offerings in partnership with Beyond Meat.<sup>145</sup>

### Pizza Pizza

In 2021, Pizza Pizza partnered with Lightlife to offer a plant-based Chick'n sandwich and bites. This supports the Canadian pizza chain's other plant-based offerings, which have been in place since 2017, including Violife cheese, plant-based pepperoni and plant-based chorizo crumble.<sup>147</sup>

### Mucho Burrito

In 2019, the Canadian Mexican fast-food chain, Mucho Burrito, introduced Beyond Meat crumbles for addition to any burrito, bowl, taco, quesadilla or salad. In 2021, they launched Nabati Foods vegan Cheeze at locations across Canada for a limited time.<sup>140</sup>

### Panago Pizza

Canadian pizza chain Panago Pizza has offered dairy-free cheese since 2014. They also offer a 100% plant-based menu including six pizzas, plant-based chicken tenders, "cheezy bread" and more. Its several plant-based protein options include meat-free pepperoni and Beyond Meat Italian Sausage crumble.<sup>144</sup>

### Pizza Nova

Canadian pizza chain Pizza Nova introduced plant-based pepperoni, Field Roast Plant-Based Chicken, and plant-based cheese to its product offerings at all 144 locations in 2021.<sup>146</sup>

### St-Hubert Group

Canada's St-Hubert chain of restaurants and grocery items offers Veggie Strips in several of its products as well as vegetarian versions of chicken pot pie, chicken and broccoli gratin, and chili pot pie.<sup>148</sup>

### Sodexo Canada

Sodexo serves hundreds of thousands of meals each day at their campus education, healthcare, corporate services and energy and resource accounts in Canada. They have committed to reducing their carbon emissions globally by 34% by 2025, identifying alternative proteins as a key aspect of that goal. In 2021, they signed the Forward Food Pledge with Humane Society International/Canada to convert 20% of Sodexo Canada's current ingredients purchasing to plant-based in the next two years to improve animal welfare, sustainability, and human health.<sup>149, 150</sup>

### Starbucks

In early 2020, Starbucks introduced a breakfast sandwich made with a Beyond Meat patty and oat milk in addition to dairy-free milk options made from soy, almond and coconut that it has offered for over a decade.<sup>151</sup>

### Sysco Canada

Sysco Canada, one of the largest broadline food distributors offers Sysco Simply™ Plant-based dining products – a growing range of ingredients and menu items including plant-based pasta and meatless burger patties. They have also started a live stream series as part of Sysco's Virtual Kitchen show to demonstrate creative uses of these products. Sysco Canada has also participated in Humane Society International/Canada's Forward Food program.<sup>152</sup>

### Tim Hortons

A Canadian coffee legend, Tim Hortons has experimented with a range of plant-based offerings, including a trial of breakfast sandwiches with Impossible 'meat' products. In late 2021 they began offering Chobani oat beverage at all locations.<sup>153</sup>





## Research Capacity and Investment in R&D

Canada has a long history of globally-recognized agri-food and agri-tech research excellence. This has created a strong foundation for alternative protein research and development. The following is a very small sample of some notable projects, centres of excellence and researchers involved in this rapidly developing area:

### RESEARCH CHAIRS

University of Alberta: Dr. C. Lingyun Chen, Canada Research Chair in Plant Protein Structure Function and Nutraceutical Delivery.<sup>154</sup>

University of Manitoba: Dr. Rotimi Aluko, Canada Research Chair in Bioactive Peptides (Tier 1),<sup>155</sup> and Dr. Nandika Bandara Canada Research Chair in Food Proteins (Tier 2).<sup>156</sup>

University of Guelph: Dr. Alejandro Marangoni, Canada Research Chair in Food, Health and Aging<sup>157</sup> with work specifically on vegan cheeses with similar function, taste and texture as processed dairy. Boston-based ingredient innovation company Motif FoodWorks has licensed their "prolamin technology."<sup>158</sup>

University of Saskatchewan: Dr. Michael Nickerson, Protein Quality and Utilization, Saskatchewan Agriculture and Food Research Chair.<sup>159</sup>



*Canada is not only a global leader in ag production, but also a leader in ag research and innovation, with world-class universities, R&D and food centres and a burgeoning private sector all devoted to maximizing the potential of Canada's ag bounty which is leading to Canada's position leading the world in alternative proteins as it has in the production of pulses, grains and oilseeds for decades.*

**Murad Al-Katib,**  
President and CEO,  
AGT Food and Ingredients

## UNIVERSITIES

**UNIVERSITY OF BRITISH COLUMBIA/FACULTY OF LAND AND FOOD SYSTEMS** Many faculty are involved in research and industry partnerships to address issues around alternative proteins.

**UNIVERSITY OF FRASER VALLEY/FOOD AND AGRICULTURE INSTITUTE** Researchers here, including Dr. Lenore Newman, are looking into various aspects of cellular agriculture, including economic, talent, technology and supply chain issues.<sup>160</sup>

**UNIVERSITY OF MANITOBA** The university is home to the Protein Quality Assessment Laboratory under Dr. James House,<sup>161</sup> and the Richardson Centre for Functional Foods and Nutraceuticals, and features various researchers involved in production and processing of plant-based meat alternatives.<sup>162</sup>

**MCMASTER UNIVERSITY** Among the many researchers focused on alternative proteins, Drs. Ravi Selvaganapathy and Alireza Shahin-Shamsabadi have developed of a new form of cultivated meat by stacking thin sheets of cultivated muscle and fat cells grown together in a lab setting, which has spun out into the start-up Evolved (formerly Caro Meats).<sup>163</sup>

**UNIVERSITY OF TORONTO** The university is home to many alternative protein research experts, including Dr Peter Stogios who is looking into cost of growth factors.<sup>164</sup> The recent AcCELLerate-ON competition for cell-based agriculture demonstrate the university's expertise in this area, including the research behind Ardra's animal-free heme and a project with Myo Palate to improve the efficiency of cell-based meat production.<sup>165</sup>

**TORONTO METROPOLITAN UNIVERSITY/SCIENCE DISCOVERY ZONE** Protein-focused start-ups such as Liven and EMN have benefited from the Discovery Zone's approach to innovation and entrepreneur support.<sup>166</sup>

**UNIVERSITY OF GUELPH** There is a long history of food and agriculture research at the University of Guelph, highlighted by the \$76M Food From Thought research project, and many others.<sup>167</sup>

**MEMORIAL UNIVERSITY** Researchers here are studying marine biomass for the purpose of developing functional foods and other sustainable bio-based products.<sup>168</sup>



Credit: NAIT



## GOVERNMENT AND FOOD/AG DEVELOPMENT CENTRES

**NATIONAL RESEARCH COUNCIL/SUSTAINABLE PROTEIN PRODUCTION PROGRAM** The program aims to increase the value of plant-based proteins and their co-products, moving them up the value chain. They collaborate on projects and pursue research to help Canadian industry address existing challenges through sustainable production practices as well as innovations in processing and manufacturing.<sup>169</sup>

**FOODTECH CANADA** FOODTECH is a network of leading innovation and commercialization Centres from across Canada, committed to turning research and development into innovative products for the food and bio-products industry. The network provides a single, integrated access point to integrated research and analytical services, product and process development, small- and large-scale processing equipment, manufacturing facilities, training, and other business and regulatory supports.

**TECH ACCESS CANADA** This is a network of 60 Technology Access Centres (TAC) which offer state-of-the-art applied research and innovation affiliated with a Canadian college. They provide companies with access to cutting-edge technology and equipment, as well as a multi-disciplinary team with the expertise to turn brilliant ideas into market-ready products. Many of the TACs have strong capabilities in agriculture and food innovation related to alternative proteins.<sup>170</sup>

**BIOFOODTECH (CHARLOTTETOWN, PE)** BioFoodTech offers an array of facilities, equipment and expertise to help with food product development, including to food pilot plants, licensed kitchens and bioprocessing pilot plants.

**CINTECH (SAINT-HYACINTHE, QC)** Cintech supports start-ups and multinationals to refine their food offerings through product development or improvement, optimization of organoleptic attributes, cost saving measures, addressing regulatory requirements, evaluating appeal to consumers and much more.

## Collaborating to Secure Canada's Domestic Food Supply Chain

A \$2.7M-multi-partner-project led by the University of McGill will create a national, sector-wide platform with enterprise-to-enterprise connectivity capabilities to strengthen Canada's domestic food supply chain.

The platform, with co-investment from Protein Industries Canada, will make it easier to recover from supply chain disruptions such as those associated with COVID-19, and help to diversify Canada's plant-based food, feed and ingredients offerings through collaborative partnerships.



Credit: The Saskatchewan Food Industry Development Centre Inc.

## Case Study – How Tech Access Centres Can Help

*The Prairie Research Kitchen (PRK) has played a pivotal role in the development of the new fava-based tofu product developed by Big Mountain Foods and Prairie Fava. PRK started working with Prairie Fava in 2016 conducting research on fava flour, a protein rich gluten-free flour that can be used in baking and conventional recipes. They went on to develop value-added platform technologies using Manitoba-grown plant proteins. This led to the base knowledge of how various protein sources function in a tofu platform, and showcased value-added applications for the co-products of tofu production. PRK then worked with Big Mountain Foods to conduct product and process validation work leading to a product development partnership, establishing the groundwork for a new product development project for Big Mountain to coincide with the investment the company was making into tofu manufacturing capabilities. The result? Fifteen million units of the new fava-based tofu will be manufactured in BMF's facilities each year.*

### SAMPLE FOOD AND TECHNOLOGY CENTRES INCLUDE:

**RED RIVER COLLEGE POLYTECHNIC/PRAIRIE RESEARCH KITCHEN (WINNIPEG, MB)** The Prairie Plant Protein Project aims to discover novel plant-protein sources that function as protein extenders or replacers.<sup>171</sup>

**FOOD INNOVATION & RESEARCH STUDIO (FIRST) AT GEORGE BROWN COLLEGE (TORONTO, ON)** FIRST is a research facility that specializes in getting new food products into market and onto store shelves.<sup>172</sup>

**THE FOOD PROCESSING DEVELOPMENT CENTRE (LEDUC, AB)** This 65,000 sq ft pilot plant and product development laboratory is equipped with over \$20M in equipment to support food product innovation along the full development and commercialization continuum.<sup>173</sup>

**THE SASKATCHEWAN AGRI-FOOD INNOVATION CENTRE INC. (FOOD CENTRE, SASKATOON, SK)** The Food Centre provides extensive facilities and services including ingredient and product development and extrusion innovation. It announced a \$7.55M expansion in 2021.<sup>174</sup>

These institutes and projects represent just a fraction of the food, nutrition, agriculture and other research expertise supporting the development of alternative proteins across Canada. In addition, Protein Industries Canada has invested \$173M in nearly 60 projects (representing a total project investment of nearly \$500M), many of which are mentioned throughout this document. Contact the report authors listed at the end of this report to learn more.

## Industry Coordination and Community

Canada's alternative protein industry is backed by a diverse range of organizations that offer financial support, information, communication and coordination across the many aspects of the value chain. Some of the key players are outlined here:

### REPORT AUTHORS

**Natural Products Canada** is a central hub for the bio-based innovation community in Canada, which includes plant-based, cellular, fermentation, and insect-based alternative proteins. It offers a suite of commercialization programs to Canadian early-stage companies and research institutes; provides connections and innovation scouting services to corporations and investors; facilitates industry-wide initiatives such as events and reports like this one, and leverages its \$50M investment fund, NPC Ventures, to help develop and de-risk promising Canadian opportunities.<sup>175</sup>

**Humane Society International/Canada** is a leading force for animal protection, with decades of experience working with governments, policymakers, corporate entities, the media, the public and other NGOs to drive positive change across the country and around the world. Together with its charitable partner organization, Friends of Humane Society International, they run a

national, innovative program called Forward Food. Forward Food is working to support the growth of Canada's alternative protein industry, building the ecosystem's capacity so that the sector can reach its full potential.<sup>176</sup>

**Protein Highway** is a bi-national partnership between the Canadian Prairies and US Upper Midwest/Great Plains. The Protein Highway aims to promote the region as the global powerhouse for alternative proteins by encouraging collaboration across industry, academia and government on both sides of the border.<sup>177</sup>

**Protein Industries Canada** was funded by the Government of Canada for \$153M as an industry-led, not-for-profit organization created to position Canada as a global source of high-quality plant protein and plant-based co-products. The vision of Protein Industries Canada is to make Canada a global leader in plant protein through investing collaboratively to accelerate innovation and the competitiveness of the Canadian plant protein sector.<sup>178</sup>





## OTHER PLAYERS

**Plant-Based Foods Canada** acts as a collective voice for the producers of plant-based products. They advocate for a modernized regulatory environment to allow members to market their products effectively and to make them accessible to all consumers. They have a wide membership base, which deepens and strengthens relationships with government and stakeholders.<sup>179</sup>

**Pulse Canada** is the national association of growers, traders and processors of Canadian pulses, also known as lentils, dry peas, beans and chickpeas. It has partnered with many others to create a Pulse Research Database to centralize pulse research in nutrition, health, environmental sustainability, quality, functionality, processing, and applications.<sup>180, 181</sup>

**New Harvest Canada** is a donor-funded research institute advancing the science behind cultured meat. They have teamed with Robert Downey Jr.'s FootPrint Coalition and the Experiment Foundation

to support research projects. New Harvest Canada is a registered non-profit corporation in Canada which enables the NGO to apply for Canadian government grants and to hire Canadian staff.<sup>182</sup>

**CellAgri** is the first news and insights platform focusing on the future of food with cellular agriculture. CellAgri tracks all the different players in the field, from start-ups to companies, and shares the latest market news, insights, and analyses with its subscribers through articles and the CellAgri newsletter, the leading newsletter focused solely on the cellular agriculture field.<sup>183</sup>

**Cellular Agriculture Canada** is a nationwide interdisciplinary not-for-profit shaping the cellular agriculture field in Canada. It collaborates with stakeholders to create open access educational resources and advocate for a fair and appropriate commercial regulation framework with the intention of initiating a diverse and informed conversation that creates new knowledge about the state of the field.<sup>184</sup>

Credit: LightLife Foods



Canada has limitless options for those seeking partnerships and collaborations to develop products, processes or other initiatives to participate in the significant opportunities found in alternative proteins. For help in accessing Canadian resources, expertise or facilities, please contact one of the report authors.



[www.naturalproductscanada.com](http://www.naturalproductscanada.com)



[www.hsicanada.ca](http://www.hsicanada.ca)



[www.proteinhighway.org](http://www.proteinhighway.org)



[www.proteinindustriescanada.ca](http://www.proteinindustriescanada.ca)



*Working with groups like Natural Products Canada and Protein Industries Canada provides my firm streamlined and de-risked opportunities to invest in those companies. Alternative proteins are one of the fastest emerging and most impactful industries, and Canada is helping lead the way.*

**Nate Crosser,**  
Blue Horizon



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