

Growing Opportunity

Canada's plant-protein potential

- Improving access to new technology (pg.6)
- Increasing international collaboration (pg.3)
- Achieving Canada's \$25 billion potential (pg.8)

Message from CEO Bill Greuel



With the launch of our second fund well underway, Protein Industries Canada is looking toward the next phase in our journey in creating a \$25 billion industry for Canada by 2035. The opportunity to achieve such significant

growth within the plant-based sector comes only once in a generation, and Canada is on the precipice of achieving it—but only if we maintain a steady focus on strategic investment, innovation and collaboration.

Canada's plant-based food sector has come a long way since Protein Industries Canada's inception in 2018. Thanks to the work of our partner companies, Canadian families—and others around the world—are seeing new options on grocery store shelves and in restaurants throughout their communities. Just as importantly, they're also seeing new job options and a more stable food supply chain, leading to a stronger Canadian economy.

But there's more we can do. Building off our agricultural foundations, we can add value to our

commodities such as peas and oats, creating high value ingredients and food products. Doing this will result in billions of new dollars to Canada's economy and thousands of new innovation-based jobs. This must be the future of agriculture in Canada. As the world evolves, so must the industries that drive our economy.

Such a global leadership opportunity isn't small; by our latest estimates, as outlined in the Market Forecast and Competitiveness Study we developed in partnership with Ernst and Young, the global plant-based protein market has the potential to reach \$250 billion by 2035. If Canada wants to achieve its portion—a \$25 billion opportunity—we need to act fast and as a collective. This means not only strategically investing in our innovative entrepreneurs, but also ensuring supportive policies and infrastructure are in place that help such companies scale their operations.

With such a framework in place, we can build a better Canada—a healthier, more sustainable Canada with roots in one of the world's most highly regarded agriculture industries.



55

Total number of projects



\$461M

Total project value



\$15B

10-year expected GDP



480

Number of organizations involved in projects



18

Number of companies that received follow-on investment



437

Number of reported IP assets as a result of co-investments

Cover photo: Technology at the Saskatchewan Food Industry Development Centre's new Fermentation Facility
Photo provided by the Saskatchewan Food Industry Development Centre



UK-Canada collaboration helping create new company and consumer benefits

The collaboration required to grow and strengthen the plant-based sector extends beyond Canada's borders. Innovation is happening around the world, and the countries who encourage their companies to partner internationally are those most likely to win the race to develop the novel food and ingredients global consumers are looking for.

"International partnerships can help increase both the pace and scale of progress in science and innovation, through accessing complementary knowledge and expertise that may not be as strong, or even absent in some domestic sectors or programs," Innovate UK's Deputy Challenge Director of Transforming Food Production Dr. Tom Jenkins said. "International partnerships also have the benefit of diversity of thinking, which often bring new approaches to problem solving that can be a powerful way to unlock barriers that may exist if we work on projects in isolation."

Recently, Innovate UK, the UK's innovation agency, and Protein Industries Canada announced a partnership aimed at advancing connections between plant-based companies in both Canada and the United Kingdom. Leveraging a variety of initiatives, one of the partnership's most significant activities is a project co-investment program that encourages companies to collaborate internationally in order to develop new technologies, ingredients and foods. Interest in the new program is high, with several companies from both regions already expressing interest.

Establishing such a partnership with Canadian organizations was both a strategic and natural choice for Innovate UK. Jenkins explained it builds on investment opportunities that the UK is making within its own sector, including through the Innovate UK Novel Low Emission Food Production Systems competition, which prioritizes plant-based proteins.

"Through the Barton report and establishment of the Superclusters, Canada has taken a very strategic leadership role across a range of sectors, such as plant-based proteins, and the investments made through Protein Industries Canada's first five-year program have been impressive to observe," Jenkins

said. "Developing opportunities for Innovate UK to collaborate with Protein Industries Canada and the portfolio of projects that are underway, would be a fantastic way to understand where synergies may exist with the UK's alternative protein ecosystem."



Dr. Tom Jenkins
Photo provided by Innovate UK

The benefits of such strategic, cross-continental collaboration begin at the company level and ripple out to global consumers. For companies, one of the largest benefits is access to technologies or expertise they may otherwise not find in their home region. This enables them to develop innovative ingredients and products that meet the taste, texture and nutrition profiles consumers around the world are looking for, helping meet the growing demand for new protein options.

"It will also be interesting to explore how new ways of approaching challenges through international partnerships can help companies to solve recalcitrant problems the sector is facing and take novel approaches that help unlock challenges that are difficult to overcome when working through existing domestic networks," Jenkins said. "We're supporting a range of companies that are taking forward exciting new approaches to enhance the nutritional quality of beverages and food products, for example to increase fibre, or to replace salt and sugar with functional alternatives. There are also innovations being developed across the functional foods category, for example to support wellbeing, healthy aging, cognitive health and to manage metabolic disorders."

With global consumers looking for new, more sustainable protein options, companies around the world have the opportunity to partner to create innovative products that exceed expectations. Strategic programs and initiatives offered by organizations such as Innovate UK and Protein Industries Canada are helping establish and solidify these partnerships, setting companies up for a successful international collaboration experience.





Daiya Crumbles on a salad. Photo provided by Daiya Foods

Long-term experience leads to new innovation and new investments for Daiya Foods

The plant-based sector has seen a surge across Canada over the past few years, but it isn't a new entry to the country's agrifood industry. A number of plant-based companies have called Canada home for more than a decade—including Vancouver-based Daiya Foods, which celebrates its 15th anniversary this year.

Known for its selection of plant-based cheese alternatives, Daiya has made a name for itself throughout Canada and around the world. Consumers know the brand for its ability to closely replicate the taste and texture of traditional cheese, using ingredients high in

protein and, increasingly often, grown and processed here in Canada.

With our 15 years of experience, we're taking everything we have learned and all the reformulations we have made along the way and putting that into a new way of making our cheese that we're confident people will love.

"We've long prided ourselves as being the 'break-through brand' in the plant-based cheese category – we existed to fill a need when there was no other alternative on the market," Daiya Vice-President of R&D Roy Tam said. "People have a special affinity with cheese – and we believe everyone should be able to eat it and enjoy it. That's why we're here, and that's why we're plant-



The desire to bring a range of cheese-forward foods to every consumer has served Daiya well. Through collaborative partnerships, including two under Protein Industries Canada's first round of funding, Daiya has spent the past few years developing novel food products featuring innovative ingredients. Focused on meeting consumer demands for improved taste, texture and nutrition, the products range from new cheese alternatives, to pizza, Mac & Cheese and frozen cheesecake.

The success of the products and partnerships has helped the company to not only grow its portfolio, but also its footprint. Daiya opened a new facility in 2022, with a state-of-the-art innovation centre focused on the latest developments in technology. It's the largest fully plant-based stand-alone manufacturing facility of its kind in North America, and just a single step in Daiya's journey toward future growth in the sector.

"With our 15 years of experience, we're taking everything we have learned and all the reformulations we have made along the way and putting that into a new way of making our cheese that we're confident people will love," Tam said. "Early this year



Daiya Vice-President of R&D Roy Tam. Photo provided by Daiya Foods

we announced we had made a multi-million-dollar investment into fermentation technology, with a new formula born out of this process due to be rolled out across products later this year. Our facility, and our new fermentation capabilities, are an investment in Daiya's future growth, and that of the entire plant-based industry."

With 15 years behind the company, and many more ahead, Daiya's innovation and product releases aren't expected to slow down. Plans for new releases are already on the horizon, providing consumers across Canada with new plant-based cheese choices to look forward to.

Artificial intelligence tools and technology have the potential to make Canada's plant-based sector more efficient and more sustainable.

To fully harness this potential, however, companies across the sector need to fully understand what goes into an effective AI solution—including effective data pools, and how best to gather and utilize them.

The Data Readiness Improvement Program (DRIP) is a virtual, three-month training and foundation-building program. Participating companies are invited to send two to five representatives to take part.

For more information, scan the QR code to the right or email projects@proteinsupercluster.ca.



New fermentation facility offers growth opportunity for Canada's plant-based companies

Growing Canada's plant-based food, feed and ingredients sector to its full potential won't be achieved only by developing new products. To achieve its full potential, particularly while improving its sustainability efforts, the sector needs to also maintain a focus on developing new processing technologies—and ensuring there's a steady level of skilled and talented workers trained to support such new technology.

The Saskatchewan Food Industry Development Centre is committed to a collaborative approach to helping Canada's food sector meet its technology and labour needs. One of its latest endeavours, in partnership with three

other organizations and a co-investment from Protein Industries Canada, focused on further fermentation work.

“Industry stakeholders have been supportive of the ecosystem initiatives as the outcomes align with addressing gaps in the fermentation space, such as scale-up fermentation including the corresponding downstream processing equipment to match the large volumes of biomass or fermented products to be processed.”

“Fermentation technology in the food industry has received a renewed interest in recent years due to the realization of its potential for the production of healthy and nutritious food in a sustainable manner,” Food Centre President Dr. Mehmet Tulbek said. “As part of Protein Industries Canada project, the Food Centre was able to map the Canadian Fermentation Ecosystem, positioning key industry stakeholders, CRO, CMO and future needs.

*The Saskatchewan Food Industry Development Centre's new fermentation facility.
Photo provided by the Saskatchewan Food Industry Development Centre*





Inside the Saskatchewan Food Industry Development Centre's new fermentation facility.

Photo provided by the Saskatchewan Food Industry Development Centre

The key take home messages were a lack of large-scale infrastructure for fermentation, adequate skills, expertise, knowledge gaps, lack of funding resources and support for startups and SMEs.”

With the increasing demand for sustainable protein options, interest in fermentation technology has grown over the past several years. Access to such technology, however, hasn't kept pace. Through their Protein Industries Canada project, the Food Centre, in partnership with Ag-West Bio, the Global Agriculture Advancement Partnership and the University of Saskatchewan, built new infrastructure to provide companies access to the technology, while also giving companies the opportunity to learn how to use it.

Set to open in 2024, the Food Centre's new fermentation facility has been an in-demand resource among Canada's plant-based sector. Tulbek credits this to the facility's ability to meet the needs of a variety of clients; housing fermenters with capacities ranging from 10 to 10,000 litres, the facility will work for companies of various sizes and various ingredient formulations. Already companies from across Canada and around the world have expressed interest in utilizing the facility, particularly as they look for ways to scale their operations.

“Industry stakeholders have been supportive of the ecosystem initiatives as the outcomes align with addressing gaps in the fermentation space, such as scale-up fermentation including the corresponding downstream processing equipment to match the

large volumes of biomass or fermented products to be processed,” Tulbek said. “Precision fermentation also plays a role in the circular economy, since the engineered microorganisms can also utilize waste feedstocks from manufacturing industries such as distilleries, breweries and grain processing industries. These waste feedstocks having sequestered nutritional components such as proteins, sugars, vitamin and bioactive compounds can be recovered through this fermentation process, thus diverting these feedstocks from the landfills.”

While their Protein Industries Canada project has come to an end, the Food Centre's work in the area of fermentation technology hasn't. They intend to continue to work with industry stakeholders to ensure the new facility meets the needs of companies of all sizes across the country, helping build out a new technology option for Canada's plant-based sector.

Fund II Capacity Building Program accepts first round of EOIs

A strong and supportive ecosystem is necessary to build a \$25 billion industry. Protein Industries Canada's Capacity Building stream supports projects that increase the competitiveness of Canada's plant-based ecosystem. Working across eight priority areas, Capacity Building projects focus on the growth and success of the entire ecosystem and complement investments into innovative R&D.

Under the call, project consortiums may submitted EOIs for projects within the priority area of “An inclusive sector that brings benefit to every Canadian”. Projects demonstrated how they will contribute to Economic Reconciliation, training and job development for Indigenous youth or under-represented groups and/or social well-being for Canadians.

More information about the Capacity Building Program is available via the QR code at the right.



How Canada can achieve a \$25 billion opportunity

Canada is in the midst of a \$25 billion opportunity. The global demand for healthy, sustainable protein options is growing, and with it the need for both increased investment and innovative solutions that help Canada's plant-based companies meet the ever-evolving demands of consumers.

Significant progress has been made in both areas since Protein Industries Canada launched its first Market Forecast and Competitiveness Study in 2021, as evidenced by the new plant-based foods and beverages that have made their way into restaurants and onto grocery store shelves. Much of the success of these new products can, according to Protein Industries Canada CEO Bill Greuel, be credited to both the innovative drive of their entrepreneurs and the valuable assets those entrepreneurs can take advantage of by building their facilities in Canada.

Similar to the 2021 report, the updated Market Forecast and Competitiveness Study released this September outlines five key areas in which Canada holds a competitive advantage over other jurisdictions:

Crop production and ingredient manufacturing; Sustainable production; Government support; Business enablers; and Market access. While these areas are considered strengths, they also provide a good indication of where Canada can focus its efforts in order to further grow its plant-based sector—a sector both the original and updated report predict could reach \$25 billion in

// The fundamentals underpinning the growth of the sector are still very strong, and what we're experiencing now, based on this report, is some short-term markets down-turn, but long-term findings suggest the growth of the plant-based food sector will be significant.

annual sales by 2035.

"Given all the changes in the marketplace and in the world since the original report was done, [the report is] still bullish on the long-term growth of the sector," Greuel said. "The fundamentals underpinning the



growth of the sector are still very strong, and what we're experiencing now, based on this report, is some short-term markets down-turn, but long-term findings suggest the growth of the plant-based food sector will be significant."

The updated study bases its predictions of further growth largely on three market segments: Plant-based meat; plant-based dairy; and plant-based baking fortification. Each segment is expected to see increased R&D and purchasing over the next several years, helping the sector as a whole reach a global market size of \$250 billion by 2035.

It's anticipated Canada can hold approximately 10 per cent of this market annually, if it increases both its innovation related to new foods and ingredients and strategic investments in the sector. Of particular importance, Greuel said, is investment into ingredient processing in the Prairies.

"The biggest thing that I am hoping to see is increased investment in ingredient manufacturing in the Prairies," he said. "That's the piece that's going to drive price parity. The more ingredient manufacturing capacity we have built out, the better we'll be able to supply food manufacturers with the ingredients they need, and that, again, drives consumer adoption, because accessibility and prices is such a huge factor."

Despite this opportunity to improve, Greuel said Canada has made progress in growing its plant-based sector. Companies throughout the country are already improving the taste, texture and nutritional profile of their products, helping meet the demands of consumers around the world. This focus on improving the functionality and consumer appeal of each ingredients and finished food products will continue, for companies and organizations such as Protein Industries Canada alike.

"It really serves to highlight some of the issues and challenges facing the market in terms of diversity of product offerings, increasing supply chain resilience, some of those things came out in this report, that

we really need to focus our innovation on," Greuel said. "It also highlights the need for a diversified innovation portfolio for Protein Industries Canada, because we see market opportunities in all three of

those segments that we assessed ... so thinking about the diversification of our investments at that end of the value chain—product formulation and creation—will be critically important, as well."

As investments into new product formulation and development continue, so will Canada's opportunity to become a leader in the global plant-based market—eventually leading to the ability to capture a \$25 billion market share that will lead to benefits for companies and families alike.

Thinking about the diversification of our investments at that end of the value chain—product formulation and creation—will be critically important.



Check out the full EY Report summary

The 2023 Market Forecast and Competitiveness Study from Protein Industries Canada, in partnership with Ernst and Young, outlines how Canada can reach its \$25 billion plant protein potential by 2035.

To view a full summary of the report—including Canada's value proposition, our competitive positioning and recommendations for future work—visit our website or scan the QR code on the right.



A healthier Canada, thanks to innovative plant-based products

Health benefits are one of the leading reasons why individuals choose to incorporate plant-based products into their diets. Consumers look forward to the high fibre content they often find in plant-based products, as well as the often low levels of saturated fats. Plant-based products' health benefits, however, have the potential to reach even further.

With plant-based ingredient innovation happening throughout the country, there's an increased opportunity to not only increase the nutritional profiles of new products, but also to bring them to a point where their benefits extend beyond the individual. This stems from the fact that such diets have the potential to lower chronic disease risk, a benefit that ripples out to affect healthcare costs.

"We're so emotionally attached to food; we generally look at a diet or a food and its benefits to the individual," Protein Industries Canada Director of the Regulatory Centre of Excellence Chris Marinangeli said. "There's certainly a broader effect and a societal effect to this. There's been some analysis done in Canada previously looking at pulse



Pulse Canada's Vice President of Market Innovation Julianne Curran

We're so emotionally attached to food; we generally look at a diet or a food and its benefits to the individual ... There's certainly a broader effect and a societal effect to this.

consumption on reduction in cardio-metabolic disease risk and associated healthcare costs, enhancing fibre consumption on healthcare costs. And there's been some other work at traditionally

plant-based dietary patterns like the Mediterranean diet on healthcare costs. So I think there's certainly a societal benefit that that impacts us all."

The connection between plant-based products' individual diet benefits and those that ripple

out to affect wider society is becoming more widely

recognized. For example, plant protein now holds a more significant entry in Canada's Food Guide than it did in the past, where it's placed in the same category as meat and dairy.

This, said Pulse Canada's Vice President of Market Innovation Julianne Curran, is a positive

step forward for plant proteins, as well as one that's relatively unique for Canada to take.

"Canada's Food Guide recommendations are to choose plant protein foods more often," she explained. "Aside from protein, both animal and plant-protein foods provide both shortfall nutrients of concern – i.e. vitamin B12, iron, calcium, vitamin D, fibre – as well as nutrients to limit – i.e. saturated fat, sodium, added sugars. Consuming a diverse diet with a range of protein food sources provides opportunities to better balance nutrient intakes."

Such health and nutritional benefits are considered



Protein Industries Canada Director of the Regulatory Centre of Excellence Chris Marinangeli



an accomplishment for plant-based companies, but they also see future potential in the area. Increasing protein content is a particular area of focus, as is reducing areas of concern such as sodium, sugar and fat. While consumer demands are some of the most important factors for companies to consider when making such adjustments, Marinangeli also cautions them to take future regulatory changes into account.

"Understand the regulatory structure of the jurisdiction to which you're marketing your product," he said. "A good example of that is in 2026 the Government of Canada is going to be enforcing with front-of-pack labelling regulations. So

Understand the regulatory structure of the jurisdiction to which you're marketing your product ... it's not only important to understand the current situation, but also understand the future.

if you're designing a food now, or formulating a food now ... you would likely want to make sure that you are

Wamame Foods' Wagyu beef alternative

aligned with the front-of-pack labelling guidelines for added sugar, saturated fat and sodium. So it's not only important to understand the current situation, but also understand the future."

As consumers increasingly add plant-based products as additions to their diets, the sector is in the midst of a unique opportunity.

Through healthier individuals, reduced disease rates and reduced healthcare costs, innovative plant-based products have the potential to help create a healthier Canada.



Plant Forward Conference



Toronto, Canada

April 16–18, 2024



Murad Al -Katib
President & CEO
AGT Food and Ingredients



Amber Mac
Master of Ceremonies



Michael Lines
President & CEO
SimplyProtein



Nathan Pelletier
Associate Professor
University of British Columbia

Join decision-makers in the global plant protein sector as we accelerate the innovation and adoption of plant-based foods.

EARLY BIRD PRICING
Available until Jan. 31, 2024

plantforwardconference.com

