

Growing Opportunity

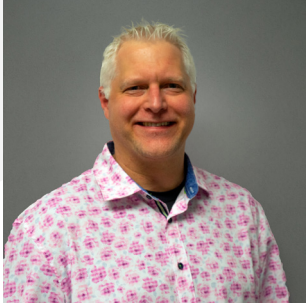
Canada's plant-protein potential

Growing the economy (pg.6)

Improving the health of Canadians (pg.3)

Bringing on past project success (pg.10)

Message from CEO Bill Greuel



Protein Industries Canada has reached a lot of milestones since our launch five years ago, but this spring we can add one of our most significant to the list: In March, we officially opened to a new round of EOIs under our

second round of program funding. As of mid-April we've already received almost 40 EOIs, with more expected to come in.

In February, the Government of Canada announced a renewal of \$150 million into Protein Industries Canada, to advance innovation across the country's plant-based sector over the next five years. This renewed commitment will help us build on the success of our first tranche of funding, through which we co-invested \$477 million into 55 projects across the country. Already we're seeing new products, technologies and services launched because of these projects, helping lead to the scale-up of SMEs across the country while providing new healthy and sustainable food options to Canadians.

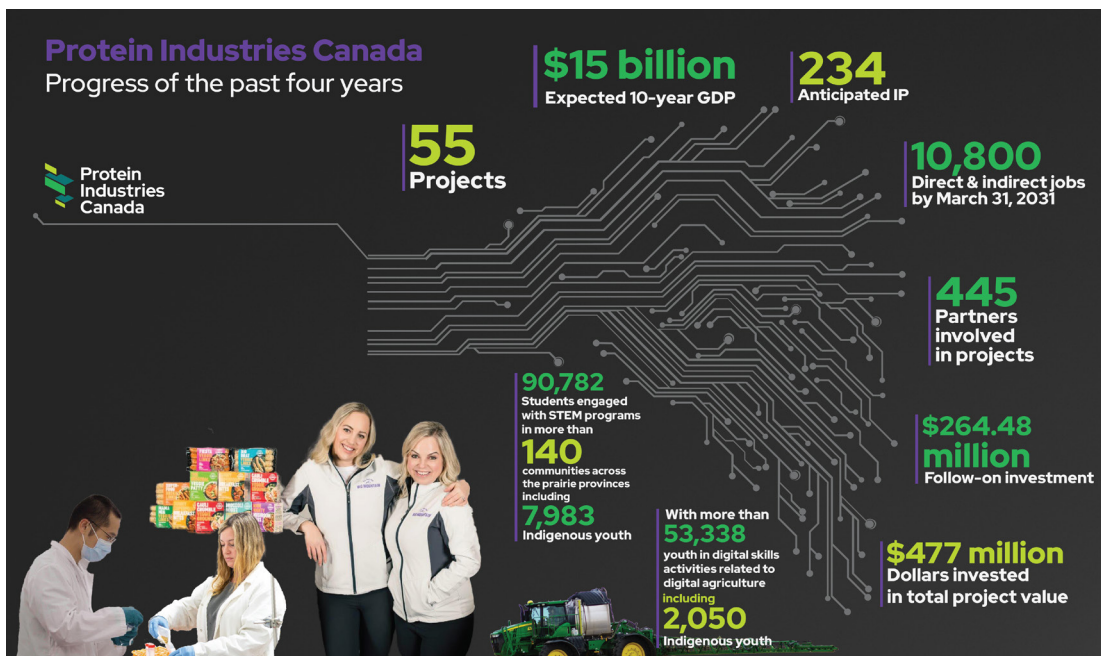
Protein Industries Canada is just as dedicated today as we were when we launched to collaboratively growing a sustainable Canadian plant-based food feed and ingredients sector. And this growth is happening—it's evident in the scale-up of new companies, in the

addition of new products on grocery store shelves, in the increase of jobs available across the sector and in the rising demand for plant-based protein around the world. But there's much more to do, and I look forward to partnering with companies across the sector as we work toward making Canada a leader in plant-based protein.

Canada's trailblazing companies will continue to build on the success our sector has experienced over the past five years—much of which has occurred thanks to the incredible opportunities our country has to offer. Canada is already known the world-over as an agricultural powerhouse, but we have the potential to expand that reputation further with plant-based foods and ingredients. Between our large land-base, focus on sustainable practices, and innovative technological advancements, along with energy security and a stable geo-political climate, we have everything needed to build a global-leading sector right here in Canada. However, reaching this potential will take a collaborative approach.

I'd like to thank everyone who has helped us reach this stage in our journey so far, including the Government of Canada and all of our partner companies. Our first five years and first round of funding went incredibly well. I can't wait to celebrate where the next five years and second round takes us.

Cover photo: Greek salad featuring Big Mountain Foods' fava-based tofu



Enhanced Medical Nutrition bringing improved protein products to Canadian patients

One of the most consistent criticisms of plant-based products is their lower protein quality compared to animal proteins. Canada's plant-based sector is working to change this, and it's an area in which Enhanced Medical Nutrition (EMN) has made significant strides.

EMN launched with the focus of selling evidence-based nutrition products to hospitals and surgeons, helping patients better prepare for and recover faster from surgery and critical illness. While they've been successful in this endeavour, they also want to expand their nutrition product offerings by providing patients with the option of a plant-based protein alternative to their animal-based protein products.

"A key component in helping people recover from surgery and critical illness is consuming adequate amounts of high-quality protein," EMN Co-founder and CEO Eric Zimmerman said. "Despite a growing demand for plant-based proteins and Canada's role as a major grower and exporter of plant proteins, there are none to date that compares to dairy-based whey protein isolate (WPI) on the growth and maintenance of muscle mass. As WPI is the current protein option in our protein-based products, we are working to commercialize a vegan version in partnership with Protein Industries Canada. Our vegan protein isolate will provide patients who cannot consume animal products with a high-quality plant protein alternative."

In their effort to develop their new plant-based protein product, EMN launched a Protein Industries Canada project with Gruppo in February 2021. As part of the project, EMN and Gruppo utilized Canadian-grown and -processed plant proteins to develop a novel plant-protein blend. This blend is being tested for its effect on muscle health in a randomized controlled trial at McMaster University under the supervision of Dr. Stuart Phillip, a tier 1 Canada Research Chair (CRC) in skeletal muscle health in ageing.

After successful trials, EMN plans on launching their new plant-based protein product in the second quarter of 2023.

"Individuals who require a vegan diet and are scheduled for surgery or living with a critical illness

will have access to high-quality protein supplements that, to our knowledge, will be nutritionally and functionally better than any other vegan proteins currently available," Zimmerman said. "As surgery is a stressful event on the body that creates major metabolic changes, it puts patients at risk for a longer recovery when nutrition intake is compromised. By offering patients a vegan version of our WPI products, individuals who require vegan proteins will have a higher chance for a successful recovery."

Knowing their nutrition needs will be met without putting their allergies at risk or sacrificing their moral dietary choices is both a relief and an ethical step forward for many patients—both of which Zimmerman and his team are proud to help provide. While achieving this goal didn't come without its challenges, particularly in the areas of product formulation and limited internal resources, Zimmerman credits a large portion of their success to the support provided by Protein Industries Canada.

"Most notable was the connections available to us through the Protein Industries Canada Cluster and the funding provided. The connections allowed us to identify and liaise with protein processors, regulatory and IP advisors much faster. The funding was pivotal in helping us hire colleagues, order materials and work with high-end subcontractors and researchers to source, validate and now commercialize our new vegan blend."

With commercialization on the horizon, Zimmerman and the EMN team are continuing to research and develop evidence-based nutrition solutions that will help patients across Canada recover faster from surgery and critical illness.

Members of the Enhanced Medical Nutrition team





Big Mountain Foods president Jasmine Byrne and founder Kimberly Chamberland. Photo provided by Big Mountain Foods

Strategic partnerships helping put new products on shelves faster

After a full initial round of funding, there's much to celebrate among Protein Industries Canada's first 55 projects. Ingredients have been formulated, technology developed and careers launched. But perhaps the most noticeable development to Canadians is that new foods and beverages are making their way to grocery store shelves across the country.

For many of the partners involved in Protein Industries Canada projects, getting these products to market came about because of a desire to provide consumers with a variety of healthy, sustainable food options. Passion and an innovative mindset helped set them on the path to success, but their willingness to collaborate with other companies helped propel their work forward at a faster rate than they would have reached alone.

"Collaborating with AGT and Protein Industries Canada has been a gamechanger," ulivit Founder Laura Gustafson said. "At ulivit we are keen on sustainability, so the opportunity to collaborate with other like-minded companies that work with local family farmers,

strive for the highest quality of ingredients, and create a better future for Canada and the world is really important to us."

Involved in two Protein Industries Canada partnerships—one with AGT Food and Ingredients focused on creating new plant-based foods using Prairie-grown and -processed pulses, and the other with AGT Food and Ingredients and Federated Co-operatives Limited focused on developing canola protein—ulivit is one of many Canadian SMEs that's

grown its business and product offerings thanks to collaborative work. Since the launch of their first project, the ulivit team has developed new plant-based food products they can now offer consumers across Canada—products whose development was accelerated thanks to the

benefits offered by partner companies.

Gustafson said one of the primary benefits of partnering with others has been the talented people it's helped her own connect with. Through these connections, ulivit's team has been able to increase

We've worked with various Canadian ingredient suppliers to help us create the best product we could before bringing it to market.



its research and development work, expand its sustainable supply chain expertise, and formulate a steady supply of innovative ideas that have helped the company grow and adapt.

Jasmine Byrne, President of Big Mountain Foods, said her company has had much the same experience through its own Protein Industries Canada partnerships. The company is currently working with Prairie Fava to develop soy-free fava-based tofu, and with Avena Foods, Daiya Foods, Bakenology and The Village Bakery to test and develop new applications for tempered pulse flours. Both partnerships have helped Big Mountain Foods determine the best products to distribute to consumers across the country.

"Partnering with other Canadian companies was vital to the product development and launch of the Soy Free Tofu," Byrne said. "We've worked with various Canadian ingredient suppliers to help us create the best product we could before bringing it to market. This meant testing out different legumes, and ultimately partnering with another Canadian—and women-owned—company, Prairie Fava, to supply the highly sustainable fava beans we use in our Soy Free Tofu. Big Mountain will continue to innovate and is working with other companies including Avena to continue launching premium plant-based proteins in the marketplace."

Outside of the development of their products, the staff at Big Mountain Foods also credit their partnerships with helping to reduce costs and improve quality and sustainability efforts.

"We were able to keep the process as cost-effective as possible, reducing any importation costs, while also being able to support Canadian businesses along the way," Byrne said. "This also meant we got only the best ingredients from Canadian suppliers given the quality standards already

set high locally, along with our stringent Quality Assurance standards. Partnering with Canadian companies also kept the product development process fairly environmentally friendly, with the lowered logistics and transportation resources spent and lesser carbon footprint."

// At ulivit we are keen on sustainability, so the opportunity to collaborate with other like-minded companies that work with local family farmers, strive for the highest quality of ingredients, and create a better future for Canada and the world is really important to us.

While collaboration between companies comes with its challenges—particularly during a global pandemic and supply chain shortages—neither Gustafson nor Byrne would go back in time to work alone. Both see partnering to accelerate their innovative work as a highly beneficial path, and recommend it to other companies who are looking to do the same.

"With collaboration the sum is way bigger than the parts," Gustafson said. "Not only do you have your own skills and expertise, you also have those of your partners. When you utilize this method, you have someone else to run your ideas by, the good, the bad, the ugly; someone to innovate and brainstorm with; someone to commiserate with who is as excited, and scared, as you are; and you get to be part of a community that is building something to make the world a better place."

ulivit founder Lauara Gustafson. Photo provided by ulivit



Growing the economy alongside the plant-based sector

As one of the country's fastest-growing sectors, it's no surprise that there's increasing demand for skills and talent in Canada's plant-based food, feed and ingredients sector. Expected to add more than 17,000 jobs to Canada's labour market over the next 10 years, the sector is looking for everything from food scientists, to engineers, to data analysts to support its growing and diverse needs.

Ensuring that this job growth is sustainable requires work on behalf of educational institutions and employers alike. For educational institutions, it's a matter of providing the best possible training to land a new job in the sector, while ensuring Canadians—from youth through to adults looking for new opportunities—are aware of the opportunities available to them. Employers, meanwhile, must focus more on providing meaningful work experiences, attracting new talent and supporting educational institutions in developing their curriculum.

Consistently developing and updating workforce skills is an important element of this work. Canada's plant-based sector is evolving at a fast rate, particularly with the incorporation of technology such as artificial intelligence. To succeed in the sector, it's important employees' education is as up to date on innovative technology and as many processing methods as possible.

"By using science, technology, engineering and math [STEM], Canadians are revolutionizing the way we approach agriculture, including the plant-based sector," Actua Senior Manager of Partner Relations Kaitlynn Carroll said. "For Canada to maintain its position as a global leader in plant protein, agrifood and digital agriculture, it must invest in its youth – as the success of this industry relies on them."

Actua has taken an active role in helping ensure

Because it's a growing industry, Canada's economy can grow along with the sector and the sector can contribute a lot to Canada's economic growth.

Canada's youth are prepared for a future in the agrifood sector. In 2021, the organization partnered with the Enterprise Machine Intelligence & Learning Initiative (EMILI) and Agriculture in the Classroom

Canada (AITC-C), with the support of Protein Industries Canada, to launch the Explore Digital Agriculture Program.

Since its launch, Actua has engaged more than 85,000 youth across the prairies in STEM and digital-skill-building programs, including more than 5,000 Indigenous youth.

"By teaching students about the opportunities available to them in the digital agriculture and

Photo courtesy of Actua





Product development work at Avena Foods.
Photo provided by Avena Foods

plant-based sector, [we] are helping to strengthen and maintain Canada's reputation as a leader in plant protein," Carroll said. "We're also working collaboratively to show a new generation that the digital agriculture sector is filled with potential. There are so many opportunities for youth to flourish in whatever capacity suits them."

The opportunity to flourish is exactly what employers across the sector are hoping to provide, as well. Gord Flaten, CEO at Avena Foods, said there is a diverse selection of secure job opportunities available across Canada's plant-based value chain—and that those opportunities are growing.

"There's a wide variety of career options to choose from, and you can move from one job to another relatively easily," he said. "For people who prefer hands-on work in operations, or in food safety and quality assurance, or in logistics, we have lots of interesting jobs to do, and it's always possible to move to a different department, to a different area and to move up into supervisory and management ranks."

// For Canada to maintain its position as a global leader in plant protein, agrifood and digital agriculture, it must invest in its youth.

Flaten stressed that, while this growth is occurring quickly, employment in the sector is more secure than it is in a lot of others. Global demand for protein, including plant-based protein, is rising, and Canada is in a prime position to supply both a significant portion of the ingredients and finished food products needed to meet that demand. Doing so, however, requires growing the country's plant-based sector.

Which is where the need for 17,000 new jobs over the next 10 years comes into play. If Canada is to supply 10 per cent of the ingredients for the world's plant-based foods by 2035—as set out in The Road to \$25 Billion—we need a skilled labour force to support that ingredient development, in every area from trade work to food science to digital agriculture.

"Because it's a growing industry, Canada's economy can grow along with the sector and the sector can contribute a lot to Canada's economic growth," Flaten said.



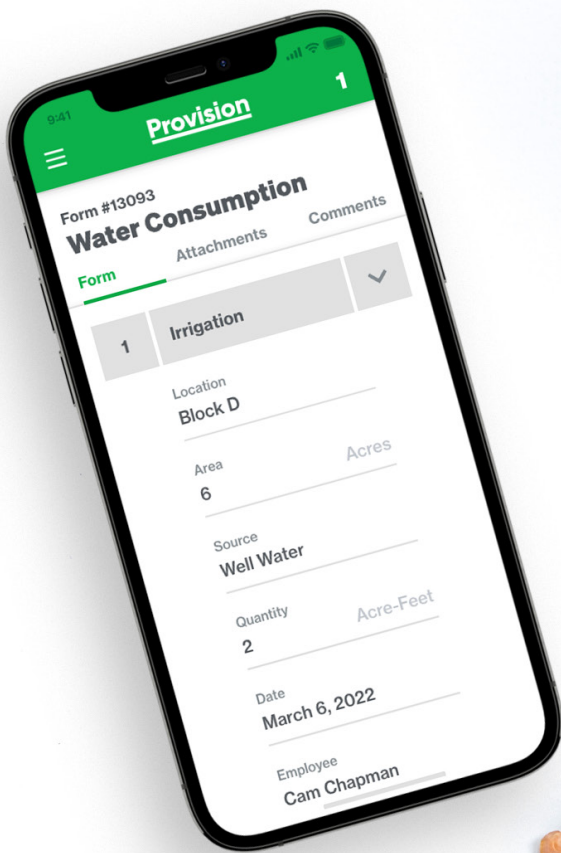


Photo provided by Provision Analytics

Canadian companies, global benefits

There are plenty of personal reasons why someone may choose to pursue a plant-based or flexitarian diet: health reasons, reducing one's environmental footprint and lessening one's effect on animal welfare issues tend to be among the most commonly cited.

One element many plant-based consumers are most passionate about, however, is the sector's ability to have a more global impact, particularly in the area of environmental sustainability.

"The companies in Canada that form the plant-based value chain need to maintain a positive environmental sustainability agenda because as a large industry, even small steps will eventually have a big impact on our planet and provide an avenue for many solutions," Prester Foods Medical Director Dr. Dilys Oladiwura said. "For example, steps to conserve resources, reduce green gas emissions and reduce waste by

individual companies would eventually culminate in big gains for our planet in the years and decades to come."

Prester Foods is one of many Canadian plant-based food companies working to improve the health of

each consumers and the environment. From farm right through to retailer, companies across the country are engaged in discussions about how they can lower their environmental impact without reducing the quality of the products they make and sell.

It's often seen as a goal that's difficult, but important, to reach, but Canada's plant-based sector is making significant strides in both areas. New products make their way to grocery store shelves each year, touting their increased nutritional and environmental benefits.

Rather than allowing wastage, collaborative work will ensure that every part of that plant is used to make a value-added product that supports the health of the society we serve.



Cited as potentially more difficult to achieve, however, is proving a company is reaching sustainability targets set out by its target markets.

“Sustainability reporting has become a requirement to gain new distribution agreements with major retailers such as Walmart, and it has become a cornerstone to achieving trust with many of their consumers,” Provision Analytics Chief Marketing Officer Kevin Davies said. “In our lifetimes, the impact of climate change is expected to take a direct toll on agriculture in many regions of Canada; mitigating those effects may ultimately become critical for our supply chain and economy.”

Davies explained that ESG reporting—or environmental, social and governance reporting—is becoming the industry standard to help companies track and provide the key metrics their customers are looking for. In short, the market is looking for greater

transparency to prove sustainability claims.

Tracking and verifying such data has become key to Provision Analytics’ work and service offerings as demand for ESG reporting rises.

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“By implementing Provision’s cloud record-keeping platform, food companies don’t only streamline reporting on their process results, they can also unlock data-driven insight for the variables they can control,” Davies explained. “Waste is a metric that has become increasingly important to the market, as the world

now exceeds 1.6 billion tonnes of primary food loss annually. Data reporting for irrigation is also becoming a requirement in many regions where sustainable water management is paramount.”

Through collaborative work, companies across Canada are able to ensure new technology—whether it’s used in-field to assess crops or in facilities at the processing stage—is functional and effective for the full plant-based value chain.

This has shown to be true not only for environmental sustainability, but also for offering improved health benefits to consumers around the world.

“For example, a plant processing organization may have the capability to fractionate a given plant into its constituents such as an oil, a protein isolate and fibre,” he said. “Rather than allowing wastage, collaborative work will ensure that every part of that plant is used to make a value-added product that supports the health of the society we serve ... This mindset is not only positive but beneficial to the society and rewarding for those who are able to successfully implement these changes to make our world a better place.”

By focusing on tracking and improving their sustainability efforts, Canada’s plant-based food, feed and ingredient companies are having a positive global effect—benefiting the health of our planet, the health of our environment and the health of consumers.

Turning an idea into a project

Protein Industries Canada, under our newly allotted \$150 million funding from the Government of Canada, is helping foster collaboration through our second round of technology programs to develop new ingredients, put new products on grocery store shelves and strengthen Canada’s plant-based ecosystem. As we move into our second round of funding, our technology projects will have a continued focus on Canada’s plant-based value chain. However, we will be placing an increased emphasis on ingredient processing, as well as

commercialization at every point in the value chain.

For more information, including how to apply, please scan the QR code on the left.



Artificial intelligence builds on past project success

Daniel McCann isn't new to the field of artificial intelligence. As founder and CEO of Precision AI, McCann has focused his career on developing the technology, most recently for use in the agriculture and agrifood sector.

"Agriculture is a prime example of where AI can be beneficial. You have either huge volumes of land or huge volumes of data, and you're looking for patterns," McCann said. "So when you consider something like an entire field where there could be a million weeds on an acre, and you want to try to make per-plant-level decisions, there's no other

When you're trying to figure out how to create a solution that is scalable, you need to get much, much, much deeper levels of expertise. And for that, we want to partner and collaborate.

way to do it. You need artificial intelligence for that next level of farming."

Since launching their first Protein Industries Canada project in August 2020—in partnership with Sure Growth Solutions Inc., Exceed Grain Marketing and the Global Institute for Food Security (GIFS)—the team at Precision AI has developed its technology to the point where it can more accurately pinpoint weeds in a field. This allows farmers to spray only the weeds

identified, cutting down on inputs such as water and herbicide, and reducing both costs and field passes.

This is a significant improvement over methods that didn't use artificial intelligence, according to McCann. He explained that most other methods require farmers or agronomists to walk or drive through fields, identifying weeds by sight. Basing their herbicide decisions on the weeds they spotted could potentially mean over- or under-spraying, possibly leading to inefficient use of inputs.

McCann and his team are hoping their technology can help reduce those inefficiencies—and potentially lead to new in-field benefits in the future.

"There's almost a limitless well of things that you can do when you use artificial intelligence that can see down to the per-plant level that you just can't do without it. We see Precision AI expanding this core technology into all of these other areas that can have a material impact on multiple parts of the plant-protein ecosystem," McCann said.

As the team continues their work in artificial intelligence technology, they intend to continue working with other companies to fine-tune their technology. Their past partnerships, according to McCann, were instrumental in helping get their current technology to where it is today.

Photo provided by Precision AI



A flight plan to feed humankind

Take your farm to new heights



Members of the Precision AI team. Photo provided by Precision AI

"Partnerships can accelerate what you're doing by bringing on the experts that know how to solve your problems best," he said. "When you're trying to figure out how to create a solution that is scalable, you need to get much, much, much deeper levels of expertise. And for that, we want to partner and collaborate."

Such a partnership, McCann added, could help a small company that may not know where to start with artificial intelligence formulate a plan—and he recommended any company not looking at incorporating artificial intelligence into its work to consider doing so as soon as possible.

Artificial intelligence technology, McCann said, is essential to the future success of small companies, large companies and Canada's plant-based future as a whole. With other countries adopting the technology at a growing rate, our own sector can't afford not to do the same, or we'll lose our chance at a competitive advantage—one defined, in part, by our successful sustainability story.

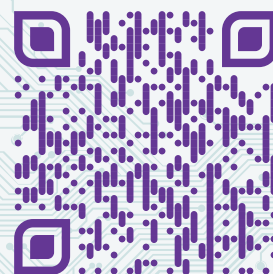
"It's an opportunity to define Canada's crops and growing system as the most sustainable in the world. To know that if you're buying Canadian, you're buying something that's planet-positive and planet-friendly. This vision is achievable through artificial intelligence."

Investing in artificial intelligence

As Canada's plant-based food, feed and ingredients sector evolves, the technology needed to sustain it evolves along with it. Protein Industries Canada recognizes the need for trailblazing companies across the country to expand the tools, resources and technologies that help keep their businesses innovative and sustainable.

Protein Industries Canada's artificial intelligence program aims to meet this need for new tools and technologies by co-investing in collaborative projects, comprised of consortia of two or more partner companies, that utilize artificial intelligence to help grow Canada's plant-based food, feed and ingredients ecosystem. Between now and March 31, 2026, Protein Industries Canada will be investing \$30 million into these artificial intelligence projects, benefiting the plant-based and agrifood sector.

For more information, including how to apply, please scan the QR code on the right.



Save-the-Date

Set aside time in your calendar this September for Protein Industries Canada's Annual General Meeting.

Featuring a lineup of inspiring speakers, including keynote Yves Potvin, this year's AGM will provide you with the expert knowledge you need to help advance innovation in Canada's plant-based food, feed and ingredients sector.

Evening Reception: September 12, 2023

AGM: September 13, 2023

The Westin Edmonton
Edmonton, AB

Partner Recipe: Silken Fava Tofu Chocolate Mousse



INGREDIENTS:

3.5 oz. (100 g) Roughly chopped dark chocolate
1 package (12 oz.-340 g) Big Mountain Fava Tofu
3 tbsp Maple syrup
¼ cup Oat milk
3 tbsp of Cocoa powder

Toppings (optional):

Chocolate shavings
Raspberries
Blackberries
Fresh mint

METHOD:

- 1 Melt the dark chocolate in the microwave in 30 second intervals, stirring each time, until the chocolate is melted.
- 2 Place the Big Mountain tofu and maple syrup in a food processor and blend until very smooth. Add the melted chocolate, cocoa powder, oat milk and blend until well combined.
- 3 Scoop the mixture into ramekins or glasses, and refrigerate for 30 minutes.
- 4 To serve, garnish with chocolate shavings, raspberries, blackberries and a sprig of fresh mint.
- 5 Leftovers will keep in the fridge for up to 3-4 days.

