



final report

Project code: V.RMH.0117 - Rabobank FoodBytes Pilot Y21 - MLA Future Food
Corporate Accelerator

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FoodBytes! The Leading Food & Agriculture Accelerator, Outcomes Report 2021

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Executive summary

In 2020, Meat and Livestock Australia (“MLA”) participated in FoodBytes! Pilot (formerly known as TERRA). FoodBytes! Pilot brings together experts, decision-makers and innovators across the entire food & agribusiness value chain – fostering connections that catapult major breakthroughs into scalable solutions by pairing emerging growth companies with established industry leaders, in a pilot-driven engagement that leads to tangible results. Since launching, Pilot has brought together 12 corporate collaborators with combined annual revenues of over \$100B, 79 emerging growth companies and launched 61 pilot partnerships.

Through the Pilot program, MLA partnered with four startups during a 5-month engagement to co-develop new products, gain market and consumer insights, and to experiment with new technologies and or practices such as finding new occasions for the consumption of Australian Red Meat. The four startup engagements were:

- **Adalin Health** – assessing the benefit of using Australian red meat as a core protein ingredient for targeted nutrition products specifically designed for active agers
- **Elemental Digest** – testing sustainable processing and abattoir technology to generate additional value from the carcass
- **MORI** – testing the functionality and use cases for its proprietary spray technology to extend Australian red meat shelf life and reduce drip loss
- **NotPla** – evaluating the range of possibilities to create new occasions for the consumption of Australian red meat using edible coatings and whether its technology could replace or reduce the need for plastic packaging

This report provides an overview of the structured pilot process and the successful pilot outcomes of MLA’s participation in FoodBytes! Pilot.

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1 Background

1.1 FoodBytes! Pilot, The Leading Food & Agriculture Accelerator

1.1.1 Introduction

In 2020, Meat and Livestock Australia (“MLA”) participated in FoodBytes! Pilot (formerly known as TERRA). FoodBytes! Pilot brings together experts, decision-makers and innovators across the entire food & agribusiness value chain – fostering connections that catapult major breakthroughs into scalable solutions by pairing emerging growth companies with established industry leaders, in a pilot-driven engagement that leads to tangible results. Since launching, Pilot has brought together 12 corporate collaborators with combined annual revenues of over \$100B, 79 emerging growth companies and launched 61 pilot partnerships.

FoodBytes! Pilot collaborators covered a range of innovation areas, including supply chain optimization, food traceability and transparency, waste reduction, and novel ingredients such as alternative proteins to increase production efficiency and meet evolving consumer preferences. FoodBytes! Pilot has brought to life tangible successes for both corporates and start-ups to stimulate potential growth beyond the program. Many pilots have outlasted the duration of the program and resulted in commercial relationships, venture capital investments and co-creation of products.

1.1.2 About Rabobank Group

Rabobank is a leading global food and agriculture bank providing sector expertise, strategic counsel and tailored financial solutions to clients across the entire food value chain. Rabobank believes sustainability and innovation are critical in promoting a thriving food and ag industry that will feed growing global populations for years to come, which is a key focus Rabobank’s Banking for Food vision to feed the world more sustainably by 2050. Rabobank’s two global innovation platforms, FoodBytes! Pilot and FoodBytes! Pitch help turn today’s most promising ideas into tomorrow’s impactful solutions through two global initiatives that are designed to build lasting connections between corporates, investors and the most promising Food and Ag start-ups.

1.2. Overview of Start-ups

FoodBytes! Pilot brings together cutting-edge start-ups with forward thinking corporates to co-develop new products, adapt technologies to new industries, build lasting commercial partners and more. Start-ups will design and implement pilot tests over six months together with their corporate partners, each focusing on a designated business challenge.

Challenges that were tackled during the MLA’s Future Food Corporate Accelerator program with FoodBytes! Pilot included clean label food, reduced plastic waste in meat packaging and foods for an ageing active population that integrate Australian Red Meat, with newly selected start-ups who were selected over 18 initially scouted for the customized engagement.

1.2.1 Start-ups Selected



Fig 1. Selected start-ups for FoodBytes! Pilot Y21

1.2.2. MLA's Ambition to Partner with Start-ups

Working in collaboration with the Australian Government and the wider red meat industry, MLA invests in initiatives that contribute to producer profitability, sustainability and global competitiveness. MLA invests around \$270M each year in R&D and marketing, representing over 50,000 members. Australian exports nearly 70% total volume to international markets – the company actively looks out for innovations that can grow demand and increase productivity and value for their stakeholders. Through FoodBytes! Pilot, MLA has the opportunity to collaborate with ground-breaking start-ups through pilot sprints to co-develop new products, learn about new technologies and adapt to new markets.

The MLA Strategic Plan 2025 highlights MLA's contribution towards the industry's 10-year plan - *Red Meat 2030* - within the context of the red meat and livestock producers the organization serves, and its purpose as a Rural Research and Development Corporation.

1.2.2.1. MLA's Objectives

MLA's goal is to focus on delivering impact through 'fewer, bigger, bolder' programs of work with guiding principles to maximize impact by connecting programs and R&D investments to customer, consumer and community insights and establishing clear adoption or extension pathways at inception. MLA's intent is to balance the current 'known' challenges and opportunities and anticipate the future issues industry will face. Further, investments need to contribute to a socially, environmentally, and economically sustainable Australia red meat industry with a clear 2025 goal to:

- **To help double the value of Australian red meat sales**, products must meet or exceed consumer needs and the focus will ideally be on where the Australian Red Meat value chain has a competitive advantage.
- **To become the trusted source of the highest quality protein**, the focus should be on product quality and product attributes, including animal health, welfare, and environmental credentials.

1.2.2.2. MLA's Purpose

To foster the long-term prosperity of the Australian red meat and livestock industry, by collaborating with stakeholders to invest in research, development and marketing initiatives that contribute to producer profitability, sustainability, and global competitiveness.

MLA's overarching ambition with the program is to work with start-ups to build and test assumptions to expand Australian beef and lamb applications for the consumer. The gained insights and developed concept products serve as valuable intelligence for the Australian red meat value chain partners, to further define long term strategy around innovation and business development.

Value of Australian red meat - Role of Meat & Livestock Australia (MLA) Ltd

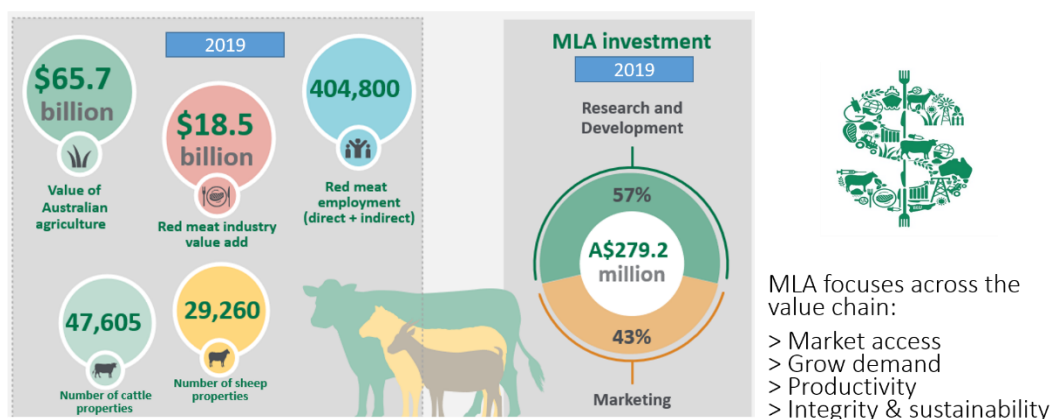


Fig 2. Role of Meat & Livestock Australia Ltd in Australian Red Meat Value Chain

2 Project objectives

2.1 Pilot Engagement with Start-ups

Through FoodBytes! Pilot, MLA is set to collaborate with start-ups to explore new solutions and technologies and engage with early stage companies that can support MLA's ambition to improve the perception of meat and spread the word on the benefits of meat products. The organisation identified three innovation objectives to focus on during FoodBytes! Pilot 2020-2021.

- **Clean Label Food**— emerging Food Tech platforms/ingredients applied to “natural, free from” value added red meat products.
- **Reduced Plastic Waste** – meat packaging: MLA is interested in exploring alternate, sustainable packaging materials that could be applied to fresh and/or cooked products with inclusion of beef, sheep meat or goat that reduce plastic waste and/or use.
- **Foods for an Ageing Population:** With life expectancy increasing, there is interest in dietary strategies for achieving a longer, healthier lifestyle.

2.1.1 Clean Label Food

MLA has the ambition to position Australian red meat as clean and green in the international markets, aligning to MLA's CN30 sustainability goal to be carbon-neutral by 2030. To realize this, the company is looking for emerging Food Tech platforms and ingredients in the industry that have solutions for “natural, free platforms/ingredients” applied to “natural, free from” value added red meat products. More specifically, MLA is interested in exploring food technology platforms and

ingredient combinations to develop prototypes that represent “kitchen cupboard” style value-added products with inclusion of beef, lamb, or goat. This could include transforming by-products as well as meat portions into new usages and occasions as well as known products, that have been re-imagined with clean labels.

2.1.2 Reduced Plastic Waste

MLA upholds the Australian Packaging Covenant underpinned by the National Environment Protection (Used Packaging Materials) Measure 2011 (NEPM), which has four targets to be achieved by 2025:

- 100% of packaging to be reusable, recyclable, or compostable
- 70% of plastic packaging recycled or composted
- 30% average recycled content across all packaging
- Phase out problematic and unnecessary single-use plastic packaging through redesign, innovation or alternative delivery methods

The meat industry currently uses significant amount of plastics in vacuum packing sub-primals (needed for chilled storage and ageing), case-ready trays, films for fresh meat, ready meals and paper pulp-cartons. Through this vertical, MLA aims to explore alternate, sustainable packaging materials that could be applied to fresh and/or cooked products with inclusion of beef, sheep meat or goat that reduces plastic waste and/or use. Solutions that can break down landfill faster and more sustainably, and address the occasions where plastic waste is contaminated by meat and therefore unable to be reused, are of key interest.

2.1.3 Foods for an Ageing Population

MLA’s ambition in this vertical is to tap into the fastest growing consumer segment of active agers (over 60). With life expectancy increasing, there is interest in dietary strategies for achieving a longer, healthier lifestyle. This consumer group has a high net worth and spending power in many markets and provides growth opportunities for many sectors, including Red Meat from Australia. This consumer group is characterized by having vastly different expectations from previous generations. A key trend in this demographic is the desire to maintain physical, mental, and social wellbeing as they age. Health and wellness to remain active and independent and desire for foods that help prevent or manage conditions and diseases (such as diabetes and high blood pressure) are becoming key drivers for growth. Red meat has number of positive attributes (such as high protein, iron and zinc for muscle retention, energy and brain power) that could meet their nutritional and lifestyle needs, though there are some potential barriers to overcome, including chewing, digestion and a declining appetite.

MLA is interested in engaging with novel food tech solutions and services that have inclusion of Australian beef, sheep or goat meat that can target the cohort of “active agers.” Through the FoodBytes! Pilot program, MLA aims to better understand what the pain and gain points are for active agers, who might key influencers be, and possible new usages and occasions for Australian Red Meat inclusions for this cohort.

3 Methodology

The Pilot Program is a tailored, corporate-led collaboration program that pairs industry leaders with emerging companies through structured pilots. Together, they tackle a specific goal or industry challenges over a 6-9 month period.

The Pilot Program is based on four key principles:

- Access to an expansive network of innovators across the food and ag industry
- Experimentation in a low-risk format to validate technologies, products, and ideas
- Results realized in an accelerated timeline
- Reputation as forward-thinking leaders in the industry

The program is characterized by a multi-step process that starts with homing in on target briefs to identify ideal start-up matches for each specific challenge or innovation goal.

3.2 Pilot Program Phases

	PHASE I – ONBOARDING	PHASE II – MATCHMAKING				PHASE III – PILOT EXECUTION			
	AUG 2020	AUG – SEPT 2020	OCT - NOV 2020			JAN 2021	JAN-APR 2021	APRIL 2021	MAY 2021
	Corporate Onboarding	Startup Curation, Vetting and Selection	Startup Pilot Proposals	Roadmap MVP Discovery	Kick-off	Start-up Roundtable	Check-ins	Final Presentations	Wrap-up report
PURPOSE	Narrow focus and set the program expectations and KPIs. Workshop MLA Target Briefs Establish ways of working	FoodBytes! Team sources and curates the startup selection process to align with each MLA target Brief. 45 relevant startups narrowed down to four	Each selected startup prepares a scope of work document to outline an MVP to explore during the FoodBytes! Pilot program.	The MLA team considers each of the finalists' proposals outlined in their Scope of Work documents and determines the most viable MVPs to explore	Each startup meets with the MLA and FoodBytes! team to identify specific pilot project parameters	Engage selected startups in planning and exchange session to ensure piloting MVPs is going smoothly	Conducted by FoodBytes! team on a monthly basis with each startup and MLA to ensure smooth piloting progress	Final presentation day to showcase each startup's process, progress and MVP outcome	Provide overview and analysis of pilot program to all stakeholders

Fig. 3 Pilot program phases

3.2.1 Corporate Onboarding

During onboarding, the FoodBytes! Team leads a collaborative workshop to narrow focus and set the program expectations and KPIs. The agenda is as follows:

a. Workshop MLA Target Briefs:

- Define MLA's strategic direction for each brief
- Designate the key drivers for innovating in this space
- Establish alignment with MLA 2025 Strategic Goals
- Identify success metrics for each target brief
- Outline auxiliary opportunity spaces within each target brief
- Showcase several FoodBytes! Alumni exemplifying innovation in this space

b. Establish Ways of Working:

- Setting ground rules and expectations for communication, selection and beyond



Fig. 4 Building a Pilot Roadmap

3.2.2 Start-up Curation, Vetting and Selection

Following the onboarding session, the FoodBytes! Team sources and curates the start-up selection to align with each MLA target Brief.

- Step 1 – FoodBytes! Team uses learnings from Target Brief Workshop in the Corporate Onboarding to identify 45 relevant start-ups from their network
- Step 2 – FoodBytes! Team shortlists top 20 start-ups
- Step 3 – Shortlist corporate-start-up interviews
- Step 4 – Finalist selection (up to 4 start-ups) conducted jointly with FoodBytes! and MLA teams

3.2.3 Start-up Pilot Proposals**3.2.3.1 FoodBytes! Deliverable: Scope of Work Document**

Once finalists are selected, each one prepares a scope of work document to outline a MVP (Minimum Viable Product) to explore during the FoodBytes! Pilot program. The following questionnaire is filled out by each participating start-up to determine the right MVP to pursue:

a. Alignment

1. Based on the initial discovery discussion, what might a pilot look like between your company and MLA? (Include details like general project plan i.e. joint product development, and details on your requirements like NDAs, IP licensing)
2. How does your tech relate to 1 or more of MLA's goals/ needs?
 - Byproduct and "waste" centric streams
 - CN30 -Carbon Neutral by 2030
 - Sustainability needs of the conscious consumer

- Expand upon your readiness to commercialize your product /technology within MLA's value chain.

b. Capabilities

1. Tell us more about the team who would execute pilot collaboration (i.e. title, background).
2. Outline your technical capabilities to complete the pilot you've noted above.
3. Elaborate on technology or product validation proof points you have to date (include links to videos, research papers, data, etc.)
4. Describe your ability to independently process, fabricate and / or ship flexibility to work with the MLA team in Australia across time zones
5. What are the key resources you need from MLA to support Pilot and long term success?
6. What are your team's capabilities for testing your tech/product with consumers?

c. Defining Success and Long-Term Vision

1. How do you envision workflow and communication for a 6 month pilot with MLA?
2. What might a commercial product as a result of your pilot look like, and what would the roadmap to commercialization entail?
3. What would pilot success look like for your company (include 2-3 metrics for success)?
4. Beyond a successful pilot result, how do you envision continued collaboration with MLA and integration into the AUS red meat supply chain?

3.2.4 Select Finalists and Roadmap MVP Discovery

Selection

The MLA team considers each of the finalists' proposals outlined in their Scope of Work documents and determines the most viable MVPs to explore. Each start-up then meets with the MLA and FoodBytes! team in a Kick-off call to identify:

- Stated Objective
- Identify Commercial Wins
- Communication with MLA
- Stipend details
- Build a timeline

The FoodBytes! Team supported MLA with the following deliverables:

- Kick-off deck with components of each discovery
- Start-up Frequently Asked Questions Document
- Identify Key Performance indicators and metrics for a second phase of engagement

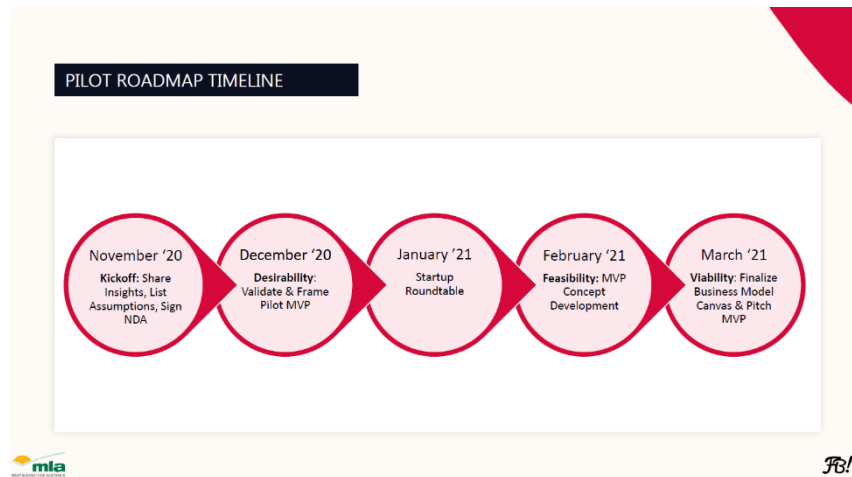


Fig 5. MVP Discovery Roadmap

3.2.5 Pilot Execution

Pilot execution begins with the Kick-off Day, a virtual event to meet with start-up collaborators and MLA. Over the next four months, the business unit and start-up collaborators execute on pilots, with regular check ins with the FoodBytes! team to monitor progress. The pilot execution stage culminates in a Final Presentation event, with a presentation of all pilot results from the selected start-ups.

3.2.6 Start-up Roundtables & Guidance

Listed below are the key tactics to facilitate the Pilot execution:

- January Start-up Roundtable, Planning and Mediation
- Communicate challenges, resources and collaboration needed, to the MLA team
- Maintain the MLA / FoodBytes! Shared framework:

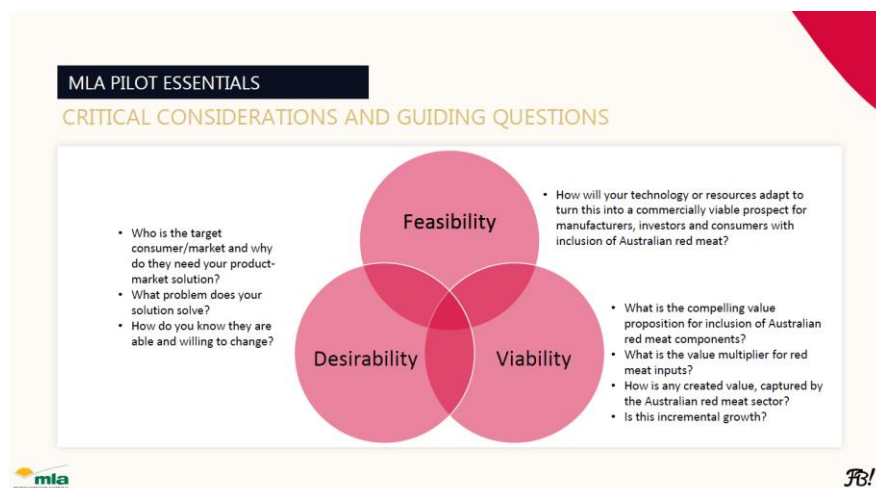


Fig. 6. Pilot Critical Considerations and Guiding Questions

3.2.7 Final Deliverable Framework and Direction

Listed below are the key parameters, as defined by the FoodBytes! and MLA teams for a successful deliverable:

- Present final discovery KPIs to MLA
- Conduct a recap meeting with start-ups and MLA to align on presentation assets
- Design framework for presentation of findings to the broader MLA team

FoodBytes! Deliverables:

- Start-up Presentation Directions Document
- Editing and audio-visual preparation

3.2.8 Final Presentation

Goal Setting: The goal of the final presentation is to provide a thorough depiction of each start-up's process, progress and MVP outcome. Although the presentations will not explain every detail regarding the MVP, it will illustrate the project's feasibility, viability, and desirability.

Format:

- 5 min MLA introduction to set the scene on Rabobank and pilot partnerships
- 20 min pre-recorded video presentation from each start-up
- 20 min for live Q&A from the MLA representatives
- 5 min break between start-up presentations

Cheat Sheet on Pitch Perfection for MLA

1. Clear product market fit, with strong underlying hypotheses
2. Sufficient upside to warrant continued or future investment
3. A team that expresses humility and forthrightness in addressing gaps
4. Paint an enticing picture of a future that MLA and its stakeholders want to be a part of
5. Show don't tell: If you're still a concept-driven thesis, your commercial proposition needs to be strong and tight. If you're at a data-driven stage, present the parts of your model that speak to performance metrics.

4 Results

4.1 Start-up Selection

The engagement with FoodBytes! Pilot began by accessing their global network of over 3,000 start-ups and technologies. The FoodBytes! team prepared a shortlist 45 start-ups that fit the MLA objectives, detailed in the three innovation briefs. During the start-up selection phase, MLA reviewed the pitches and materials from the start-ups that align with MLA's target briefs and broader strategic goals. Among the applications, MLA interviewed 12 start-ups selecting four to pilot

with that fit with their innovation objectives: Adalin Health & Nutrition, Elemental Digest, Mori and Notpla, whose solutions ranged from alternatives to plastic, capitalizing on the entire carcass and uncovering new occasions and format to consume Australian Red Meat.

4.1.1 Adalin Health & Nutrition

As ageing populations grow globally, the opportunity to develop household products that add essential nutrients is vast. Collagen peptides and other by-product derivatives of Australian beef are optimal ingredients for products that protect joint health and promote healthy ageing. Adalin's focus on nutrient-rich beef derivative ingredients is in line with its overall mission to support ageing populations and design new occasions for red meat consumption. Adalin's beverage products and supplements give older eaters an easier option for eating meat-based products.

Feedback from MLA

- *Hopes:* To understand their needs of the active ager and to discover this demographics' key pain points? Is it nutrition?
- *Fears:* They are concerned that a product like this may not strongly showcase the "made in Australia" value proposition. MLA wants the MVP to include at least two product use cases and to incorporate Australian red meat into Adalin's existing product offering.
- MLA wants this to be a part of a broader look into ageing populations and a looking into populations with declining red meat consumption. They want to tie this into nutrition that older people need to stay active and healthy.

MLA's ambition to collaborate with Adalin Health & Nutrition

- Presents a new occasion for ageing consumers to enjoy Australian Red Meat
- Target Brief: Foods for an Ageing Population
- Adalin's existing e-commerce presence represents a viable next step following discovery to go-to-market
- Collagen Peptide as a leading ingredient will increase overall value per head



Fig. 7. Company Profile of Adalin Health + Nutrition

4.1.2 Elemental Digest

Elemental Digest has taken on the task of proving the amount of recapturable value of the carcass that exists at the abattoir level. Although larger processing facilities are aware of the waste, they are sceptical of by-products that do not have a proven market. Also, they lack the technical understanding for altering large systems that are seemingly immovable. By vertically integrating their technology on-site, Elemental can prove a remarkable ROI for participating Abattoir customers. If their models work in discovery, The Australian red meat supply chain could drive significant value from by-products and otherwise discarded components of slaughtered beef.

Feedback from MLA

- Hopes:** To demonstrate ability for Elemental's technology to capture value for Australian processors.
- Eager to explore the first mover advantage for early adoption of circular economy.
- The figure of capturing 40kgs extra per head is very compelling
- MLA is keen to understand how to model Elemental's Tech to the Australian Red Meat landscape
- Keen to have MVP focus on Australian lamb and goat meat in addition to beef processing by-products.

- MLA eager to explore health and wellness upcycling applications like bone broth and collagen beverages.

MLA's ambition to collaborate with Elemental Digest

- Proven in the UK market, Elemental could be a direct fit with existing processors in Australia
- Target Brief: By-product added value
- The ROI is immense and the challenge of proving value in the by-products themselves is part of the discovery MVP
- Elemental Digest is open to expanding to the Australian Market



www.elementaldigest.com

Headquarters

- Founded: 2012
- Headquarters: Devon, United Kingdom
- Employees: 3-10

Management

- Alex Gardener
- Dean Bishop

Stage of development



Sector Focus



Sub Sector Focus

- Upcycling

Rabobank Relationship

- FoodBytes! Pitch Applicant

Description

- Processor of animal protein by-products, installed at the slaughterhouse (initially beef processors). The first stage uses a natural extraction process to manufacture premium beef extract (edible protein) and beef dripping (edible fat) from fresh meaty bones and fat trimmings. These uniquely produced, fully authentic and traceable ingredients are utilised by food producers, flavour houses, catering services and household consumers.

Collaboration Opportunities

- The company can explore opportunities to create value added products from current waste streams during processing. These by-products can be applied to a new product targeting the ageing population.
- Second to this (as a follow-on pilot opportunity), the company works further upstream by combining bone phosphate waste together with other slaughterhouse organic waste streams, such as horns, teeth, jaws, gut content, slurries and hide water etc, into a sterile, regenerative and sustainable organic-mineral fertiliser for use by agriculture and the amenity market.

Expected Deliverables

- Report of Abattoir data discovery in collaboration with consultant
- Demonstrate ROI at the Abattoir Level
- Total addressable market & competitive landscape for by-product derivatives in the AUS market
- Provide a consumer and/or processor testimonial
- Demonstrate how this tech proves the value of AUS red meat to the consumer
- Present a long-term project roadmap with defined next steps, leveraging Dawn Meats experience

Target Brief: By-product added value

Learning Objective

- What additional value can be generated from the low value of the carcass

R&D Identification

- The best value streams for low value Australian red meat cuts.
- How to optimise transport/shelf life associated with the movement of low value meat inputs.
- Opportunities to aggregate volumes of what has been traditionally been classified as waste and help position Australia as clean, green and circular.

To understand:

- Is sustainable processing and abattoir tech compelling enough to persuade consumers to choose AUS red meat over competition?
- The requirements of international markets and tailor our low value red meat streams accordingly.
- The business models Elemental Digest wishes to explore to commercialise in Australia.

MLA 2021 Pilot MVP



Source: Pitchbook, Crunchbase, Rabobank

Fig. 8. Company profile Elemental Digest

4.1.3 Mori

Shelf stability and shortened supply chains are critical for the future of the red meat supply chain. Mori's silk-derived natural coating can improve cold and chilled chain logistics while creating new export opportunities. Although Drip-loss and discoloration are a constant challenge in the industry, there are few natural solutions. Mori's ability to integrate into existing spray lines and preserve red meat in transit aligns with MLA's target brief for waste mitigation and plastic reduction.

Feedback from MLA

- Want to have an impact that grows demand and increases productivity.
- How can we establish trust with the customer that Mori's technology is adding value to product?
- Most interested in Mori's technology to maintain red meat quality, presentation, colour preservation and shelf stability.
- Want to ensure pilot addresses how using Mori's technology could generate value upstream for Australian livestock farmers. MLA mentioned interest in comparing the margin captured by the farmer if MORI coating used on whole carcass vs B2C product.
- Would like to establish a point of differentiation in the market for Australian meat with Mori technology
- Can Australia be first to market with this technology?
- *Biggest challenge*: how to modify spray levels to accommodate for small and large cuts of meat.

MLA's ambition to collaborate with Mori

- Mori is a later-stage company with deployable technology
- Target Brief: Reduced Plastic waste and testing potential applications for improved international market access
- Demonstrated viability within red meat with a 'critical path' through the Australian red meat supply chain
- Can address gaps in the chilled and cold chain to drive revenue for specialty cuts and parts
- Ability to integrate formula into existing post-harvest sprayers
- Mitigates drip-loss to increase value



Fig. 9. Company Profile Mori

4.1.4 Notpla

MLA recognises the need to reduce plastic packaging and eco-conscious products can also inspire shoppers, to experiment with new occasions for consuming Australian Red Meat. Notpla's core capabilities align well with both aspects of MLA's strategy. Notpla is an adept design team that understands consumer needs on an ethnographic level. They leverage their proprietary material, an edible seaweed film that can package and season raw beef cuts. Notpla's solutions delight and their "butcher paper" concept reflects a surging trend in Australia as consumers are increasing their trips to the butcher. Notpla fundamentally reduces plastic usage while creating a luxury experience for all generations to embrace.

Feedback from MLA

- Hopes:** to point to the insights obtained during their research as the reason why this innovation can drive sales of Australian Red Meat. Notpla will push boundaries, build insights, and create a pathway for commercialization.

- **Fears:** That the farmers may not see the connection to red meat sales and how this new product captures value for Australia.
- Notpla represents a great opportunity to showcase new occasions to enjoy red meat. New retail butcher experiences, new potentially developed products like an edible bone broth “tea bag” will delight consumers and create new, value-added products
- They want to see two to six possible form factors using Notpla tech.
Biggest challenge: To demonstrate how Notpla New Product Development can demonstrate both feasibility and viability for the Australian red meat sector

MLA’s ambition to collaborate with Notpla

- Leads sector with a unique corporate collaboration
- Target Brief: Clean Label Food, Plastic Reduction and New Occasions for Eating Australian Red Meat
- Aligns to Australian Meat industry sustainable goals and clean green reputation (CN30) and consumer drivers for less plastics
- Expectation: test and develop several commercial use cases for Notpla’s edible red meat packaging



www.notpla.com

- Founded: 2014
- Headquarters: London, England
- Employees: 20

Management

- Rodrigo Gonzalez,
- Olivia Walker
- Karlijn Sibbel
- Mireille Steinhage



Stage of development



Sector Focus

Sub Sector Focus

- Sustainable packaging
- Consumable packaging

Rabobank Relationship

- FoodBytes! Ecosystem

Description

- Notpla designs edible “water packaging” that is both flexible and watertight. It has the texture of a gel, is tasteless and is easy to bite into. Notpla’s core product is natural and biodegradable and enables users to get the convenience of “plastic bottles” while limiting the environmental impact..
- Although early iterations of Notpla’s product were consumable, their technology is an effective packaging liner as well.

Collaboration Opportunities

- Claim that their core product “Ooha!” is a versatile, consumable packaging.
- Ooha is applied to both ready-to-drink sport and cocktail beverages.
- It is used to develop “sachets.” condiment packs in the take-away industry.
- Ooha is also used as a liner for waterproofing and grease proofing takeaway boxes.

Expected Deliverables

- Working prototype and/or rendering of butcher paper
- Show process, product iteration and testing
- A breakdown of the total addressable market in AUS and how the butcher product could scale
- What new occasions (for eating Australian red meat) does this product inspire
- What is the commercial pathway and product market fit
- How does this tech prove / differentiate the value of AUS red meat

Target Brief: Clean Label Food, Plastic Reduction and New Occasions for Eating AUS Red Meat

Learning Objective

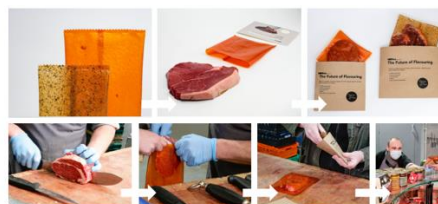
- What is the range of possibilities to create new occasions for AUS red meat using edible coatings?
- Are their limitations on portion size/weight/acid constructs?

To Identify:

- What are the possible applications for this technology in a ready retail meat department / foodservice?

To Understand

- Can this tech be used to eliminate the consumer actually having to handle raw meat?
- Can ‘bursts’ excite the category similar to inclusions in beverages and / or deliver personalized nutrition?
- If the tech can potentially replace, or at least minimize the need for plastic packaging.



Source: Rabobank, Pitchbook, Crunchbase

Fig. 10. Company profile Notpla

4.2 FoodBytes! Pilot MLA Discovery MVP Presentation

Virtual Presentation

This Pilot was unique in that it had the added requirement of a virtual setting. This called for greater attention to communication and setting intentional performance metrics. FoodBytes! leveraged its global network of leading food innovators to address MLA's objectives, adjusting as needed. The FoodBytes! team believes this not only delivered MVPs with decisive outcomes, but also a validated process for ideation through difficult circumstances. The strength of this process predicated the lasting potential of the technologies discovered throughout the MLA FoodBytes! Pilot. With the right support, there is a strong indication that the companies, products, and solutions discovered will drive future revenues for the Australian red meat supply chain.

Date / Time:

- Final Pitch and presentation of MVP Discovery through deliverable
- April 20th, 2021 6pm-930pm EST (April 21st, 2021 9am-1230pm AEST)

4.3 Pilot progress

4.3.1 Adalin Health & Nutrition

MLA ran a successful pilot test with Adalin Health & Nutrition. The companies were planning to co-create and produce new products together and gain insights through marketing customer surveys. As a result, Adalin developed several beverage prototypes to enhance joint health made of Australian beef collagen peptide. Consumer surveys and market research were conducted on their new products.

Adalin identified four main customer groups or "personas":

1. Over 55 AND/OR suffering from osteoarthritis AND taking medication (glucosamine/chondroitin or other complementary medication).
2. Over 45 AND suffering from episodic pain or stiffness but NOT taking medication.
3. Over 45 AND returning to the gym.
4. Over 35 AND recovering from knee, shoulder, or back injury.

The hypothesis is that these consumer groups would favour a clean, Australian, grass-fed, organic product, produced without the use of harsh chemicals, over an imported product delivered in pill or pharmaceutical form. The Adalin team also believed that Australian provenance could be leveraged for distribution into China and other export markets.

The approach

- There were two delivery formats to test.

- A powdered, supplement that is stirred into drinks
- A coffee SKU that is enjoyed as a functional ready-to-drink option
- Engaged *Watch Me Think*, an ethnographic-style research agency that focuses on behavioural research, and provided real life target consumers with real life products to test at home.
- Conducted 26 customer interviews to identify target market and pain points

The outcome

The supply chain exists, using a proxy collagen to develop the product and build the consumer base will reduce the investment risk for the collagen supplier. It complies with the relevant regulatory framework and, if priced at a monthly equivalent to pills and capsules, and at a similar price point to collagen coffee and collagen creamers, then it provides a generous margin to invest back into driving growth.

Next steps

Adalin has submitted a proposal to MLA to conduct further research for their developed MVP into the US market. This is planned to begin in the second quarter of 2021.



Fig. 11. Newly developed products by MLA and Adalin Health + Nutrition

4.3.2 Elemental Digest

MLA facilitated a successful build-of-material and operation modelling with Elemental Digest. Both Elemental and MLA leveraged years of industry expertise to construct a model for entry to the Australian market. The companies aim to use Elemental's existing work with Dawn Meats in the UK to demonstrate how Australian processors can generate revenue from by-products and value-added derivatives. This challenge took on two fronts. Firstly, the teams needed to recalibrate their work with Dawn for abattoirs in Australia. Elemental worked to prove to viability of transporting that tech to Australia. Secondly, they set out to answer what the market's appetite for by-product derivatives were once a system was established.

The approach

Elemental's main research objective was to model existing U.K technology within the Australian market.

- Engage a local abattoir engineer to provide accurate Australia-specific data
- Project the total addressable market regionally for by-products derived from elemental's process
- Develop an action plan to deploy technology in Australia



- Food ingredients (stocks and meat extracts)
- Fats for food manufacturing and biofuel refinement
- High phosphate content fertiliser
- Potential for animal feed from an edible plant and bonemeal



www.elemental.uk 3

Fig. 12. Co-developed model for upcycling abattoir by-products

The outcome

- 20% increase in protein which is equivalent to recapturing over 40kg of additional meat per head of cattle
- 25% more fat per head of cattle
- 20% CO2 saving: for every 10kg CO2 to produce 1kg of beef live weight we can save up to 2kg of CO2
- Confirmed UK example based on 150,000 animals processed, the carbon saving is the equivalent of saving the carbon footprint of more than 25,000 cattle (avg. weight 340kg)
- 48% less energy required to convert the ABPs into our fertiliser compared to rendering
- Fertiliser delivering 100% phosphate in a soluble form vs insoluble bonemeal phosphate
Flavour/taste is critical

Next Steps

- Identify a suitable partner
- Agree the best process solution from Elemental's adaptable technology
- Agree the desired outputs and markets
- Enter a licence agreement
- Discussions between Elemental and MLA are in place regarding the possibility of an Australian pilot plant set up, processor webinar sessions and a trip to the UK to see the Elemental Digest facilities and tech in action

Global Markets

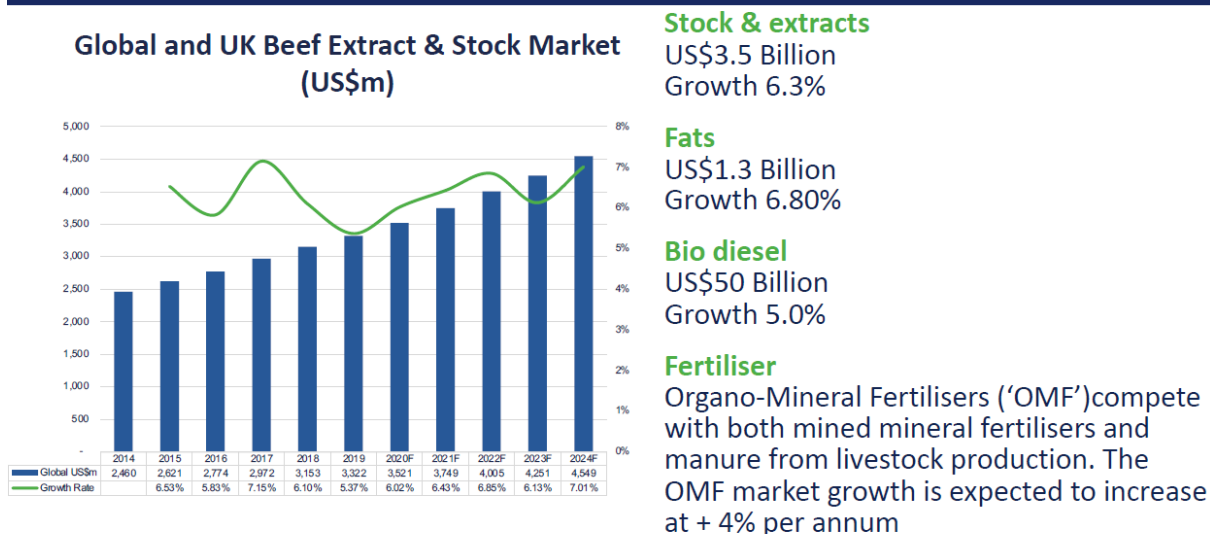

www.elemental.uk 8

Fig. 13. Beef By-product Total Addressable Market

4.3.3 Mori

MLA collaborated with Mori to conduct research to determine the applicability of natural silk derived coating within the Australian Red Meat supply chain. The main goal was to determine Mori's preservation efficacy within wrapped raw cuts, mince, and offal.

The approach

- Focused in International market, a critical path for commercialization in the red meat vertical
- Collaborated with MLA processors in the US to step through R&D roadmap
- Shared existing data within red meat with MLA team

The outcome

Reduced shrink coupled with improved distribution and export made the value proposition stronger than domestic processors. Through US-based Australian beef processor interactions facilitated through MLA, Mori was able to compare prior R&D that initially indicated efficacy for reducing shrink did not perform as expected and was therefore inferior to other common packaging methods. Additionally, initial research revealed that longer term testing and inline integration is needed to support viability claims. Ultimately, this has pushed Mori to move forward with organoleptic testing to assess other potential claims in the space.

Next Steps

- Recently raised \$16M Series B will include expansion of product development capabilities in protein.

- Mori is building a team to concentrate on protein and is planning on seeing pilots with MLA again in early 2022.

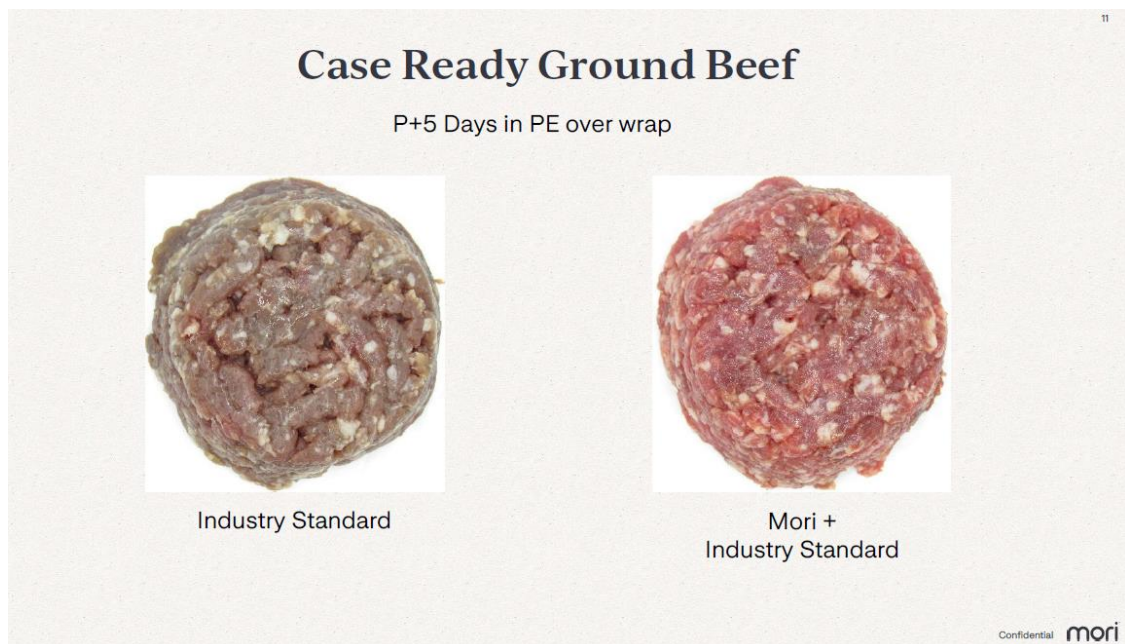


Fig.14. Mori Mince R&D co-developed with MLA

4.3.4 Notpla

MLA and Notpla successfully ran their pilot over three countries and through challenging time zones. Notpla's ability to inspire through fun and practical designs resonated with the MLA team. They selected a "butcher paper" prototype to deploy in actual butcheries in the UK and the Netherlands.

The approach

- Tested three different use case concepts for their edible packaging
 - Defrost & dissolve
 - Meal kit redesigned
 - The future of flavouring
- Tested the most relevant concept, the future of flavouring, which entailed:
 - Quality Flavour Matching with meat
 - Wine matching
 - Variation and Customisation
 - Convenient cooking
 - Packing fresh meals - without plastic
 - Premium and unique product - butchers
- Test with Local Butchers in The Netherlands and UK
- Scope trials with Australian butchers

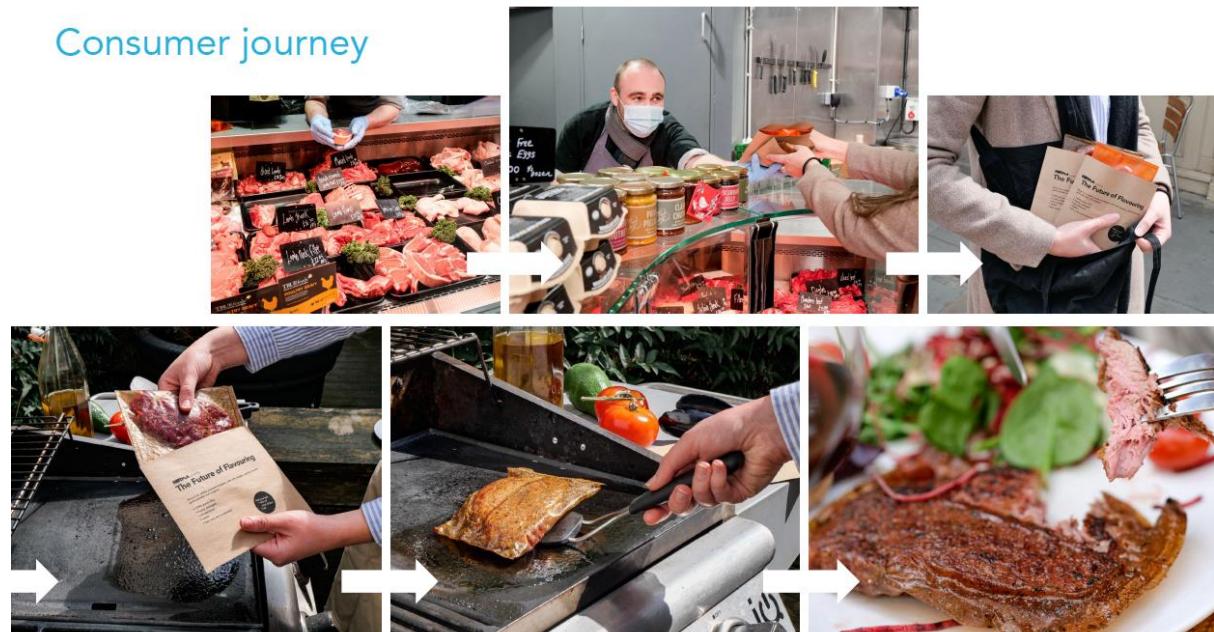


Fig. 15. Notpla Consumer Journey Mapping

The outcome

- 87% of the consumers surveyed would be willing to pay more for sustainable packaging
- 60% saw added value in packaging that contained herbs and seasoning.
- 73% of consumers would recommend this method of roasting meat to others.
- Notpla's roadmap projects they can address 5% of the Australian retail butcher population in the near term.

Next Steps

- Collaborate with chefs:
 - Optimize flavours
 - Explore other cooking methods
- Conduct more product development
 - Vacuum seal film around meat
 - Easy to handle design (fill and seal by butcher)
- Extend collaboration with butchers in Australia to grow the trial on Australian market and test larger scale production (lab to small industrial)
- Build on collaboration with scientists
 - Next stage of technical/hygiene tests
 - Shelf-life and quality
- Notpla is in the process of sending samples of their products, both pouches and overwrap, to MLA. The plan is to sample and test products internally and review with other industry stakeholders to allow them to personally experience and understand the Notpla tech and solution.



Fig. 16. Depiction of Notpla's MVP product's "customer journey"

4.4 Final Presentation day

On April 20th, 2021 at 6 pm-9:30pm EST (April 21st, 2021 9 am-12:30pm AEST), MLA and the four selected start-ups came together virtually to present the results of their MVP explorations. Representatives from MLA, FoodBytes! and Rabobank were in attendance.

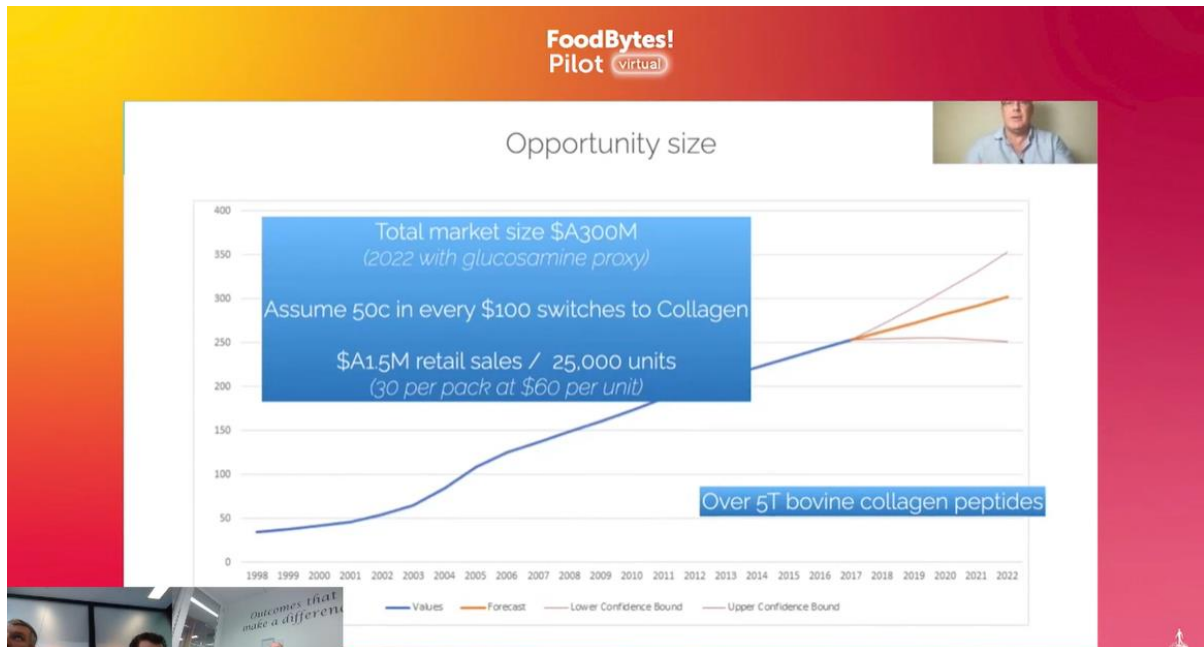


Fig.17. Adalin Health's Depiction of Opportunity Size for Beef By-Products

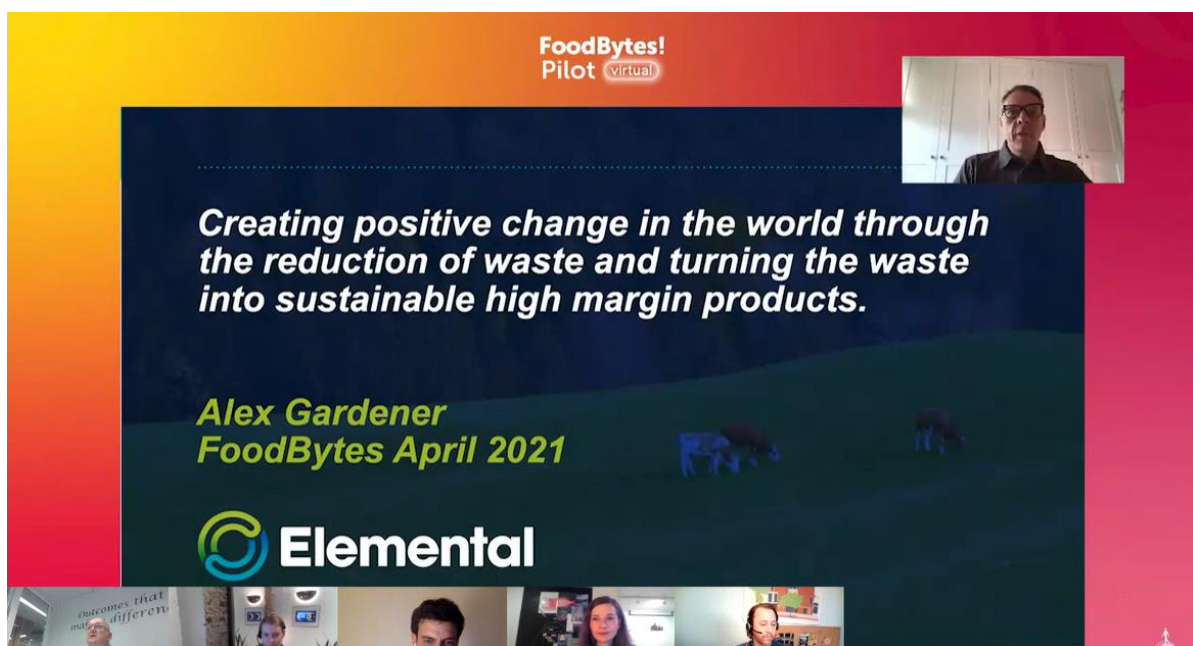


Fig. 18. Elemental Digest Final Presentation

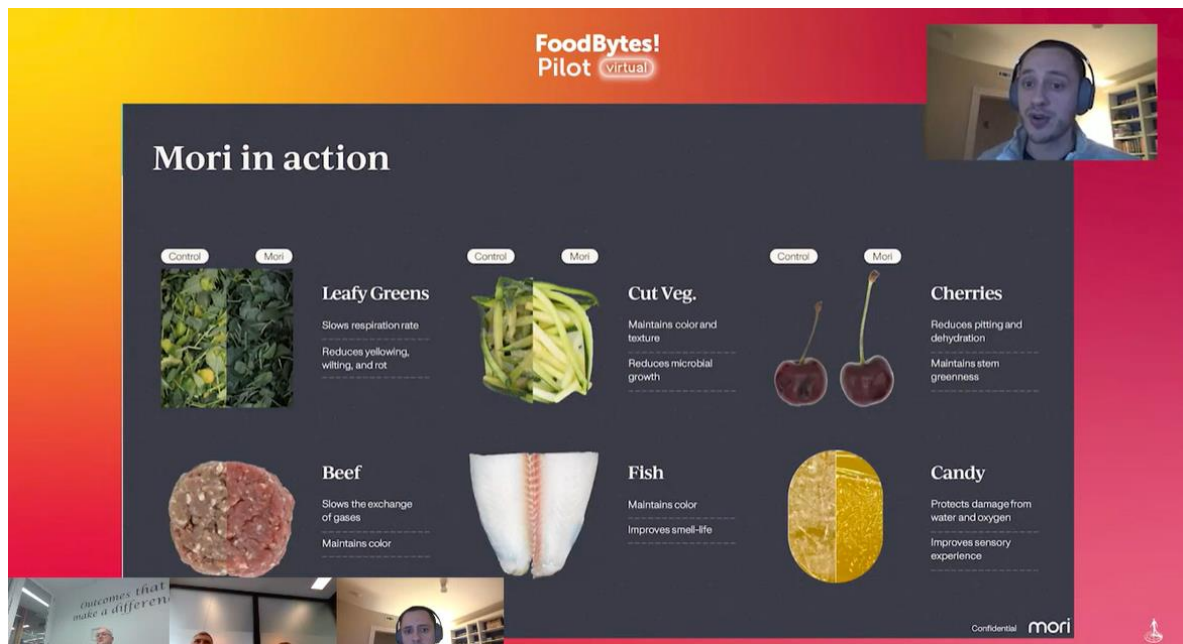


Fig 19. Mori Diverse Product Applications



Fig. 20. Notpla Team at Final Presentation

5 Discussion

5.1 Project Objective Outcomes

5.1.1 Discover plastic reduction packaging technologies

Summary and Implications: Successfully tested edible butcher paper in retail settings within the UK and the Netherlands. Results indicated that 87% of the consumers surveyed would be willing to pay more for sustainable packaging; 60% saw added value in packaging that contained herbs and seasoning; 73% of consumers would recommend this method of roasting meat to others.

Implications include a consumer demand for more sustainable options at their retail butcher and at home. As a shift to more home cooking prevails, the trials point to more adventurous and new ways to enjoy Australian Red Meat.

5.1.2 Discover methods for capturing and adding value to processing by-products

Summary and Implications: With a possible ROI for processors at approximately 136% within 3 years, Elemental's existing deployment on site should be enough to consider adoption in the Australian market. Projections for a 20% increase in protein which is equivalent to recapturing over 40kg of additional meat per head of cattle support MLA's ambition to drive revenue from the entire animal while mitigating waste. The carbon savings imply this technology is an important tool for organizations like MLA that strive for neutrality by 2030.

5.1.3 Discover natural processes to preserve red meat

Summary and Implications: This pilot addressed the challenge inherent in cold and chilled chain preservation technologies. MLA's access to processors globally combined with knowledge of regulatory hurdles expedited a promising technology through a difficult growth phase. Natural coating that can effectively impact how fresh Australian red meat is shipped and stored will be an essential innovation towards increasing meat consumption within the international markets we supply. A technology that is natural while prolonging freshness and quality for producers will serve as a catalyst for growth into new markets and categories.

5.1.4 Discover new occasions for ageing populations

Summary and Implications: Producing novel occasions for consuming beef-derived products that are nutrient rich will help ageing populations eager to stay active. With a wide spectrum of consumers identified, the market for products with collagen as their core ingredient is large. Although products that support an ageing population will alleviate pain and provide nutrients, it will also help socialize collagen as a main ingredient. Once socialized, the right formula can cross over into other demographics and discover new beef-derived ingredients to drink.

6 Conclusions/recommendations

Connecting with the start-up community to experiment with Australian red meat was successfully completed in the FoodBytes! Pilot program with 4 start-ups participating in the pilot.

FoodBytes was successful in sourcing over 45 applicants and screened them down to 18 partners for MLA that aligned with the research briefs. Over a 4-5-month period, each of the 4 start-ups successfully

developed Minimum Viable Product (MVP) concepts and deduced insights that were presented back to MLA. These start-ups each have potential to continue their work in partnership with MLA that could significantly impact the Australian Red Meat value chain.