



final report

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Development of new innovative meat snacks for Australian and export markets.

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P.PSH.0811 Development of new innovative meat snacks for Australian and export markets.

November 2018

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Purpose: Jim's Jerky has identified a real opportunity to develop new innovative snack products based on red meat and incorporating other protein sources such as nuts, for the retail and route markets in Australia and South-East Asia.

This project includes;

- Development of new meat snack range. Including mixed protein sources,
- Optimisation of existing product manufacturing and value chains.

Acknowledgment of funding sources:

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Abstract

The meat snack market is benefiting from rapidly growing interest in protein content. According to Innova Market Insights almost 15% of global meat snack launches in 2015 used protein claims. The global meat snacks market, other than the US and South Africa has remained underdeveloped. In the US, meat snacks are fourth largest savoury snack category behind potato chips, tortilla chips and nuts/trail mixes. Meat snacks as a category meets 3 of the 10 key trends in food in 2016 as defined by New Nutrition Business. It meets consumer trends, Snackification, Naturally Functional and Protein.

Consumers are well-educated about health and wellness and have a strong understanding of ingredients like Conjugated Linoleic Acid (CLA), Omega-3s and antioxidants, the industry has faced an uphill battle in the perception of meat. Whilst Meat maybe perceived as not healthy, meat snacks provides an opportunity to promote to a new generation of consumers the health benefits of consuming meat.

Jim's Jerky has identified a real opportunity to develop innovative new snack products based on red meat and incorporating other protein sources such as nuts, for the retail and route markets in Australia and South-East Asia. This project explored new business models and value chain optimisation to deliver on Australian Retail opportunities and unlock export potential to key Asian markets.

Meat snacks is a product platform that has the potential to increase the market demand for red meat via new high value product and market development, that will translate into increased value and incremental volume back to Australian producers.

Executive summary

Snacking is one of the biggest trends in food and health, affecting every category, every type of food and beverage and helping create a blurring of boundaries between categories.

The Australian snack food market is large and expected to continue to grow. In 2010-11 the snack food market generated \$2.1 billion revenue, increasing to \$2.4 billion in 2015-16 (with an estimated 9-10% profit margin). Jerky is often considered the most popular “meat snack”, however in Australia, this market represents ~\$56.2m sales, making up only 2.34% of the Australian snack market.

Growth in Australian snacking is driven by a shift towards smaller and more frequent eating occasions:

- 53% of consumers are opting for smaller snacks
- 90% of consumers snack multiple times throughout the day
- 47% of consumers say they really enjoy anything new and different or trying new kinds of ethnic cuisine
- Mirrored in global trends towards ‘snackification’

The snacking behaviors of younger consumers is a strong driver of the meat snack segment, with Consumers aged 34 and under are more likely to prioritize meat in their diets than their older counterparts. This, combined with their increased propensity to snack, has considerably boosted opportunities in the meat snack segment. Such snacks also benefit from their perceived nutritional superiority compared with traditional potato and corn chips, and relative uniqueness, which is particularly appealing to younger consumers seeking new and unconventional consumption experiences.

Meat snack premiumization has challenged category conventions/ An important component of this trend is the evolution of meat snacks beyond conventional jerky and sausage sticks. Manufacturers are increasingly experimenting with a range of proteins, formats, and gourmet flavours to elevate consumption from convenience-store snacks to an exciting taste experience and even credible meal replacement and/or accompaniment. Improved sourcing transparency and ethical production of such offerings is also enhancing premium credentials.

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1. Background

Snacking is one of the biggest trends in food and health, affecting every category, every type of food and beverage and helping create a blurring of boundaries between categories.

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Meat snack premiumization has challenged category conventions/ An important component of this trend is the evolution of meat snacks beyond conventional jerky and sausage sticks. Manufacturers are increasingly experimenting with a range of proteins, formats, and gourmet flavours to elevate consumption from convenience-store snacks to an exciting taste experience and even credible meal replacement and/or accompaniment. Improved sourcing transparency and ethical production of such offerings is also enhancing premium credentials.

2. Methodology

The project was undertaken using with the following methodology:

2.1 Study of markets, consumers and value chains for dried beef snack products, both domestically and in key export markets, including any regulatory barriers or requirements.

2.1.1. Define the markets and segments to include in the market study – intention is to include South East Asia

2.1.2. Undertake study of markets, consumers and value chains for dried beef products. Study to identify market size and value and potential early adopters whom have an unmet need and an ability to change and pay premiums; possible product format and size; impediments to entry (ie regulatory); competitors in the market.

2.1.3. Undertake Cost-Benefit analysis, including at the business level.

2.2 Investigation of the business model and value chain structures for Jim's Jerky.

2.2.1 Undertake an analysis of Jim's current manufacturing process. Identify requirements to increase efficiency and integrity systems for Australian made beef snacks for domestic and export markets

2.2.2 Review existing business model and supply chain structure and recommend changes required.

2.2.3 Undertake feasibility study of supply business model: new production facility versus contract manufacturing. To include cost benefit analysis.

2.3 Manufacturing optimisation.

2.3.1 Research into optimum processing methods.

2.3.2 Undertake manufacturing review and process design for domestic and export markets.

2.3.3 Review manufacturing options considering new technologies, quality, efficiencies, accreditations and verification schedules and yields and costs imposts.

2.3.4 Recommendation for manufacturing requirements and process and packaging equipment. Define requirements for export certification.

2.3.5 Undertake capacity modelling and proof of concept development trials of redeveloped product - process - packaging system.

2.4 Development of new innovative dried red meat snack products

2.4.1 Define new customer driven product range.

2.4.2 Develop small scale new innovative dried red meat snack product concept range.

2.4.3 Conduct consumer sensory and microbial/chemical evaluation.

2.4.4 Validation of product quality and performance in-market. Prototype samples sent through supply chain to ensure outcomes are not affected.

2.4.5 In-market assessment of taste and texture to validate outputs.

2.4.6 Preliminary marketing mix development highlighting key business (and product) features.

3 Results and Discussion

3.1 Study of markets, consumers and value chains for dried beef snack products, both domestically and in key export markets, including any regulatory barriers or requirements.

This Project Objective investigated markets, consumers and value chains for dried beef snack products, both domestically and in key export markets, including any regulatory barriers or requirements. The work involved the following activities;

- Define the markets and segments to include in the market study – intention is to include South East Asia
- Undertake study of markets, consumers and value chains for dried beef products. Study to identify market size and value and potential early adopters whom have an unmet need and an ability to change and pay premiums; possible product format and size; impediments to entry (i.e. regulatory); competitors in the market.

The global snack food market is enormous and expected to reach USD 620Bn per annum by 2021 (Businesswire, 2016), however snack cravings of consumers are changing and changing fast. Like most other FMCG categories the consumer is voting with they're hard earned dollars and spending more on fresh and natural "better for you" snacking options. This is a trend which is only gathering momentum.

Meal-Replacement Foods are Showing Strong Growth; Absence of Ingredients in Snacks More Important Than the Addition of Them

Snack food has emerged as an alternative to full-fledged meals with the paradigm shift in consumer behavior patterns, the higher the disposable incomes because of the growing urbanization and increasing preference for convenience food have triggered the growth of the snack industry. The rising health consciousness among customers and government regulations regarding procurement of raw materials like vegetables, meat, etc. are restraining the growth of snack food consumption to some extent. Innovative product offerings regarding functional ingredients and organic foods may provide a future growth opportunity in the sector.

The meaning of snacking and meals is changing



Figure 1: Kerry Foods

Snacks with all-natural ingredients are rated very important by 45 %of global respondents and moderately important by 32%—the highest percentages out of the 20 health attributes included in the study (Nielsen, 2014) these are the product attributes, which red meat snacks have in abundance.

Consumer demand is driven primarily by taste and health considerations and consumers are not willing to compromise on either. The consumer at the point of purchase ultimately decides the right balance. Understanding the 'why before the buy' provides the foresight necessary to deliver the right product to the right consumer at the right time, so it is imperative that we get the product positioning and branding spot on to avail of the sizable business opportunity for the Australian red meat industry, here in Australia and throughout Asia.

In addition, the meat snack market is benefiting from rapidly growing interest in protein content. According to Innova Market Insights report, almost 15% of global meat snack launches in 2015 used protein claims. The global meat snacks market, other than the US and South Africa has remained underdeveloped. In the US, meat snacks are the fourth largest savory snack category behind potato chips, tortilla chips and nuts/trail mixes.

TREND – Consumers eat by occasion not by product... Therefore, opportunity to innovate the usage of meat

US Snacking Segments: Value & Growth

Total Volume Description	Latest 52 Wks - W/E 12/26/15	2yr \$ CAGR
Meat Snacks	\$ 2,676,173,271	9.5%
Bagged/Salty/Savory	★ \$ 31,346,605,166	3.5%
Confectionary	\$ 24,428,225,537	2.1%
Bars	\$ 5,078,841,087	4.3%
Bakery	\$ 19,480,062,711	2.4%
Dairy	\$ 11,573,876,300	4.4%
Snacking Grand Total	\$ 94,583,784,072	3.2%

Source: Nielsen AOD \$ volume – xAOC plus Convenience, 52 weeks ending 12/26/15

Figure 2: Nielsen

The Australian snack food market is large and expected to continue to grow. In 2010-11 the snack food market generated \$2.1 billion revenue, increasing to \$2.4 billion in 2015-16 (with an estimated 9-10% profit margin). Jerky is often considered the most popular “meat snack”, however in Australia, this market represents ~\$56.2m sales, making up only 2.34% of the

Australian snack market, compared to the 9.5% share for meat snack in the US. Given the penetration of jerky in the US market there is potentially a fourfold potential increase opportunity for the category in Australia, not to mention the future opportunity which undoubtedly exist for the category across Asia.

Growth in Australian snacking is driven by a shift towards smaller and more frequent eating occasions:

- 53% of consumers are opting for smaller snacks
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Snacking's options are everywhere – this is what the snack food industry call “arm's length from desire”, as snacking becomes a part of our everyday lives. Snacks are far more widely available than from the local corner store, in some petrol and convenience stores from Australia to Tokyo some 90% of the range of product available in these stores could be categorized in the greater snacking category.

The impending boom in natural better for you snacking category represents an opportunity to develop an Australian red meat product for consumption “on the go” and outside of the home or restaurants channels. This opportunity should allow Australian red meat to build and benefit on the amazing investments in trade and consumer recognition/trust of the quality of their product offering.

The challenge now is to take Australian red meat as a branded offering to the streets and become a global player in the rapidly changing snack food category.

A British government report from 2015 suggests that snacks can make up around 25% of our total daily calorie intake, about the same allocated to breakfast, so if our consumer is actively changing their consumption habits it may be prudent to ensure we have desired product offering's available to avail of this switch from in home consumption to out of the home “on the go” consumption.

Meat snack premiumization has challenged category conventions. An important component of this trend is the evolution of meat snacks beyond conventional jerky and sausage sticks. Manufacturers are increasingly experimenting with a range of proteins, formats, and gourmet flavors to elevate consumption from convenience-store snacks to an exciting taste experience and even credible meal replacement and/or accompaniment. Improved sourcing transparency and ethical production of such offerings is also enhancing premium credentials.

However, the consumer perception of Jerky as a snack must change if we need to attempt to position Australian red meat as a natural, protein packed, healthy nutritious snack. As mentioned in a previous MLA report dated August, 2015 by David Jenkinson

- Current Jerky offerings tend to be somewhat 1-dimensional, limiting the opportunity for what dried-meat based snack offerings could become
- Rarely have more people 'rejected' a product they have never tried – often because of negative social imagery
- Given the properties of Jerky, there is huge scope to explore different angles

The opportunity exists to reposition jerky into a more premium upmarket offering and away

from what some people would perceive as “road kill” or lower quality meat. This transformation can happen for Australian jerky, one needs to just look at the success of both the EPIC bar and the Krave brand, both took very different positions and were successful.

- **Recommendation # 1**

Develop an Australian jerky branded offering, which will resonate with the Asian consumer

- **Recommendation # 2**

Conduct consumer research in targeted markets, on the product and brand to ensure correct brand propositions and taste profiles.

- **Recommendation # 3**

Based on the insights and findings from the above research formulate detailed launch plans plus route to market plan for the launch of a premium Australian jerky branded proposition into the test markets.

“Today, such is the degree to which snacking is becoming part of people’s everyday eating habits, that whatever food commodity you are in, you need to have a snacking variant.” – PROFESSOR DAVID HUGHES

3.2 Investigation of the business model and value chain structures

Jim’s Jerky held detail discussions with Corporate Venturing provider, Badalya to explore business models and value chain design. The Project team met with the principles from Badalya, George Gekas and Richard Webb, together with Christine Pitt from MLA in Melbourne. At the second meeting, held at the MLA offices in Brisbane, Jim and Emily from Jim’s Jerky met with Richard and George, together with Michael Lee from MLA. The meeting reviewed a proposal put forward by Badalya, in which Badalya provides commercialisation services in exchange for equity. A decision was placed on hold until Badalya conducted a ‘Lean model canvas’ process with Jim’s Jerky.

During this process an exercise was conducted where the value proposition was explored together with the business understanding of what the customer wanted.

The business modelling session did not identify any issues or information that hadn’t already been explored, apart from one piece which involved farmer participation (nose to tail products) and DNA testing of our product. While interesting, Jim’s Jerky did not believe it was a commercial attribute to the business in the short/medium term. The findings from the ‘Lean model canvas’ process closely resembled those from the process undertaken 12 months ago.

At this stage, Jim’s Jerky does not believe that an arrangement with Badalya will add any value to the project.

Manufacturing Facility

The Jim's Jerky Project Team determined that co-manufacturing 'business model' would not give the required operational, commercial or financial control or confidentiality. The team then undertook a search of South East Queensland for suitable manufacturing facilities that the business could buy or lease. A suitable site has been found and the team are undertaking a final process design activity to determine any required factory layout changes, equipment requirements and hence cost implications.

Work on AQIS process layout and requirements for new factory has been completed. Jim's Jerky is currently in final negotiations for lease with purchase option with current owner. The project has also managed to secure support funding for the development of the Export QA documentation and the process for Halal certification is in progress

Export markets

Jim's Jerky has collected market data regarding size of the target market segment. This has included in-market data regarding taste and texture profiling of target consumers.

The project has also worked with FLA (Food Leaders Australia) participating in the emerging exporters program, to ensure correct market entry processes are implemented. FLA is a partnership between the Toowoomba and Surat Basin Enterprise (TSBE) and the University of Southern Queensland's Institute for Agriculture and the Environment.

Work has commenced on understanding market-entry barriers (taxes etc).

Product

The project has engaged both a market research company to validate market and consumer acceptance of Brand positioning and packaging format, as well as a Japanese Sensory Research company to measure objectively the taste and texture of Jim's Jerky products relative to other Australian and Japanese jerky products available in the Japanese market. On basis of the market research undertaken to date, the project team have commenced refinement of the proposed product range to meet Japanese consumer's taste preferences.

The Project Team has determined optimum processing methods and packaging requirements for manufacturing refined product range for the Japanese market. The final manufacturing protocols, product ingredients and specifications will be finalised once manufacturing trials can commence in the new processing facilities.

3.3 Manufacturing optimisation.

This stage of the project involved; undertake manufacturing review and process design for domestic and export markets, a review manufacturing options considering new technologies, quality, efficiencies, accreditations and verification schedules and yields and costs imposts and recommendations for manufacturing requirements and process and packaging equipment.

The project team undertook a review of the existing jerky manufacturing process, together with other general red meat value adding capability in South East Queensland. This review enabled the project team to define;

- Optimum processing methods and packaging requirements.

- Determine indicative South East Asian export market requirements.
- Identify required co-manufacturing capability, assess capability/suitability and
- Identification and discussions with potential contract manufacturers.

The Project team identified 3 companies located in South East Queensland with potentially the appropriate capability to co-manufacture Jim's existing jerky range, as well as proposed new innovative red meat snacks.

3.4 Development of new innovative dried red meat snack products

This objective involved i) Defining a new customer driven product range, ii) Developed a small scale new innovative dried red meat snack product concept range, iii) Conduct consumer sensory and microbial/chemical evaluation, iv) Validation of product quality and performance in-market, v) In-market assessment of taste and texture to validate outputs and vi) Preliminary marketing mix development highlighting key business (and product) features.

In the development of a new innovative dried red meat snack product range Jim's Jerky undertook a route to market analysis for targeted markets, followed by sensory validation with Qualitative & Quantitative research covering the in-country sensory evaluation of Jim's Jerky products and other competitor products, both Australian and locally manufactured.

In-Market competitor analysis and market positioning

The project team engaged Euromonitor International to validate market and consumer acceptance of Brand positioning and packaging format. Euromonitor's work was undertaken to achieve the following:

- Evaluate the export opportunities of selected countries
- Understand the specific local market competitor and channel dynamics
- Understand consumer attitudes and behaviours towards red meat snacking
- Assess competitors and their successful marketing and positioning to potentially adopt
- Identify potential barriers and how to overcome challenges

Euromonitor's research included;

Categories

- Savoury snacks (*category*)
 - Nuts, Seeds and Trail Mixes (*subcategory*)
 - Salty Snacks
 - Savoury Biscuits
 - Popcorn
 - Pretzels
 - Other Savoury Snacks (collectively)

- Red meat snacks (*segment*), Pork Jerky and Beef Jerky
- Fish snacks

Definitions used in research

Savoury Snacks - This is the aggregation of fruit snacks, chips/crisps, extruded snacks, tortilla/corn chips, popcorn, pretzels, nuts and other sweet and savoury snacks.

Other Savoury Snacks - Any snack products not included in the previous definitions fall under this heading. Examples of such products included are seaweed snacks, fish snacks, pork scratchings, non-dairy based cup jellies (both chilled and shelf stable). Snack noodles are also included. Ready-to-eat dried noodles intended to be eaten as a snack are different from plain, instant, chilled and frozen noodles insofar as they do not need to be prepared or cooked prior to consumption. Note: Weetabix products are wheat cereal products (to go into breakfast cereals). Snack-a- Jacks, Rispino (Mars) type of snacks should also be excluded. These are rice-based extruded snacks and such products fall under rice snacks. Leading brands of snack noodles include LaChoy (ConAgra Foods), Baby Star (Oyatsu Food Corp), Master Kong (Ting Hsin International Group), Science Noodles (Uni-President Enterprises Corp), Mamee (Mamee-Double Decker), Mie Gemez (Siantar Top Tbk Pt).

Red Meat Snacks -includes red meat jerky, meat sticks, biltong, meat floss.

Methodology

Stage 1 Kick-off and alignment

In this stage, Euromonitor sets up its team, designs briefs, templates, and discussion guides and worked with Jim's Jerky to refine definitions, scope, existing knowledge and project timelines.

Kick-off Meeting

- **INTRODUCTIONS** Relevant stakeholders from Euromonitor and Jim's Jerky representative.
- **ALIGNMENT** A confirmation of final scope, definitions, metrics, deliverables and project timeline.
- **PROJECT TOOLS** Discussion of the shape of templates.
- **KNOWLEDGE TRANSFER** An important goal was to obtain any relevant knowledge and current perspective. Sharing this information helped avoid duplicate efforts, quickly educated our consultants, and identified key knowledge gaps to prioritize during the study.

Stage 2 Research

In this stage, Euromonitor focused on core research activities. Tasks during this stage included:

Internal Audit

- Research begin with a thorough review of Euromonitor's Passport (Packaged Food, Health & Wellness) and Economies & Consumers data systems to gather relevant

data and analysis. These insights provided logical benchmarks to help guide and validate all data and insights gathered throughout the project.

Desk Research

- This activity involved gathering and reviewing publicly available information.
- Euromonitor undertook an exhaustive review of secondary sources in English and local languages, including:
 - government websites;
 - food industry associations' reports;
 - specialist trade press;
 - company websites / reports;
 - any other relevant information available in the public domain.
- Secondary research was also conducted to gather published information to determine local market information such as:
 - key food trends
 - key demand growth drivers
 - key players/leading brands within savoury snacks, and relevant published information
 - leading channels for savoury snacks
- During this phase of the research analysts developed a list of trade contacts across the supply chain for the interview stage.

Store Visits

- After gathering relevant internal and published information, Euromonitor analysts visited up to **5** stores in key cities in each of the country markets of interest.
- The store visits provided an excellent understanding of:
 - leading brands
 - product range of products at visited stores (includes availability, pack size and format, country of origin)
 - point-of-sale materials
 - packaging type
 - pack sizes
 - product positioning/claims
 - pricing differences
- During in-store visits, Euromonitor analysts engaged with local consumers and merchants to gather insights and trends on-the-ground, such as:
 - Consumer preferences (taste, product of origin, etc.)
 - Consumer purchasing patterns or habits
 - Preferences of fish snacks vs red meat snacks

Trade Interviews

- Euromonitor conducted in-depth trade interviews with industry players which provided crucial project data and insights not available from published sources.
- Euromonitor Analysts used discussion guides (instead of questionnaires) to frame open-ended conversations with the goal of gathering deeper insights.
- Approximately **10** trade interviews were conducted by in-country analysts in each of the country markets (**30** in-depth trade interviews in total). Euromonitor engaged with a wide variety of players in the supply chain, including, industry associations, food manufacturers/companies, distributors/importers. Euromonitor engaged:
 - **2** industry associations/governing bodies
 - **4** food companies, manufacturers
 - **2** food importers/distributors
 - **2** industry analysts with relevant insight
- In-depth trade interviews establish the following insights:
 - An estimate the size of red meat snacking segment
 - An estimate split (%) of each of beef jerky and pork jerky within red meat snacks
 - An estimated forecast size (CAGR) of red meat snacking segment over the next 5 years.
 - An assessment of the market dynamics in red meat snacks, including key trends and drivers, and other information not available from published sources.
 - Information on profiled players that are not available from published sources, including opportunities and challenges.

As part of final reporting, Euromonitor will provide Jim's Jerky with a list of sources, including the names of companies and the departments of respondents interviewed.

Consumer Surveys

The objective of the survey is to understand the purchasing behaviours and consumption drivers of consumers in each of the countries of interest. The survey was structured as follows:

- Online and close-ended questions
- Approximately 10 minutes in length; conducted in English/local language
- N=100 total completes for each city of interest (n=300 surveys in total)
 - Aged 18 years old and above
 - Purchaser of red meat snacking products (e.g. beef jerky) in the past three months
- Specifically, the survey solicited answers to questions such as:
 - Who is the target consumer of red meat snacks?
 - Who are the key influencers of snacking products?

- What are consumer's preferences of savoury snacks? (beef jerky vs pork jerky vs fish snacks, etc.)
- What are consumer's perception of Australian red meat snack products?
- What varieties of meat products consumers want to see at retail stores?
- What are consumers' savoury snacking habits? (red meat snacks vs fish snacks, etc.)
- Where do consumers go to purchase savoury snacks and why?

Stage 3 Analysis and deliverable preparation

Throughout the research process, Euromonitor utilised its experienced project consultants located in Singapore and Tokyo offices to coordinate and direct the efforts of the research and analyst teams in the field.

- As the research and analysis was completed, the consultants rigorously reason- check all project findings.
- Final deliverables will be prepared through a triangulation of sources (internal audit, secondary research and trade interviews) to create a consensus output that provides authoritative insights in addressing the core objectives.

Stage 4 Post-delivery support

- On-going research support to answer any questions on the data and analysis in the deliverable with two weeks of the final delivery. No additional research will be conducted during this phase.

Consumer Sensory and Product Evaluation

The project team engaged the Japanese Research company, Taste and Aroma Strategic Research Institute Co (TASRI) to measure objectively the taste and texture of samples jerky products from Jim's Jerky and compare those with other Australian and Japanese jerky products.

TASRI's Taste Sensing System, TS5000Z can analyses distinct taste characteristics in beef jerky samples. The Taste system was developed by Prof. Toko of Kyushu University and manufactured by Intelligent Sensor Technology, Inc. (INSENT), and is the world first sensor to evaluates taste. This instrument measures five basic tastes attributes (Umami, Bitterness, Saltiness, Sourness, Sweetness) as well as astringent taste.

The taste sensor imitates the taste reception mechanism of living organisms. The taste sensors consist of an artificial lipid membrane (similar to that of the human tongue) that causes electrostatic or hydrophobic interactions with various taste substances, allowing them to sense "taste".

Texture analysis was conducted using a Tensipresser (Takemoto Electric Corporation) and the results presented in bar and scatter chart format.

The following process was undertaken;

1. Samples prepared for taste measurement.

2. Conduct objective taste measurement of samples using.
3. Analyse data using Scatter and Radar chart to define taste balance signature.
4. Prepare samples for texture analysis.
5. Conduct texture measurement
6. Analyse data using Bar and Radar chart to define balance signature.
7. Report findings.

Taste and Aroma Strategic Research Institute Co completed the objective measurement of 5 sample product variants from Jim's Jerky range, 5 products imported from New Zealand and the US together with 9 Japanese products (5 high selling products). The findings recommended some minor changes to Jim's Jerky to move its taste profile closer to the product with the highest purchase rate in Japan.

Table 1: Taste Characteristics measured by Taste Instrument

Taste type		Taste feature	Taste substances	Food / Beverage
Initial-taste	Sourness (2 sensors)	Sour taste from citric acid, tartaric acid, acetic acid	Acetic acid, citric acid, lactic acid, etc.	Wine, yogurt, beer, coffee, fruit juice, jam
	Bitterness (basicity)	Bitter taste of medicine, rich taste or hidden taste when in lesser concentration	Quinine hydrochloride, dibucine hydrochloride, anion surfactant, etc.	Tomato juice, sports drink, chocolate, soba (buckwheat) mugicha medicine
	Bitterness (food)	Bitter taste of food, rich taste or hidden taste when in lesser concentration	Isoalpha acid, picric acid, absinth, rabdoshia japonica, anion surfactant, etc.	Oolong tea, vegetable soup, tofu, Japanese sake, beer, scorched meat, grapefruit juice
	Astringency	Astringent taste, stimulation taste or hidden taste when in lesser concentration	Tannin acid, gallic acid, chlorogenic acid, epigallocatechin, etc.	Wine, tea, coffee, chocolate, grape, berries
	Sweetness	Sweet taste from sugar and sugar alcohol	Glucose, fructose, sucrose, maltose, etc.	Soft drinks, cooked rice, candy
	Umami	Taste of amino acid and nucleic acid	MSG, IMP, disodium succinate, etc.	Sauce, soup, meat, curry, fish, gravy sauce, BBQ sauce, soy sauce
	Saltiness	Salty taste from inorganic salt	Sodium chloride, potassium chloride, potassium bromide, etc.	Soy sauce, soup, BBQ sauce
After-taste	Umami	Long lasting Umami	MSG, IMP, disodium succinate, etc.	Sauce, soup, meat, curry, fish, gravy sauce, BBQ sauce, soy sauce
	Bitterness (inorganic ion)	Bitter taste from inorganic ion, such as calcium and magnesium	Calcium sulfate, magnesium sulfate, calcium chloride, magnesium chloride, etc.	Mineral water, milk
	Bitterness (basicity)	Bitter taste from basic substance often found in medicine	Quinine hydrochloride, dibucine hydrochloride, anion surfactant, etc.	Tomato juice, sports drink, chocolate, soba (buckwheat) noodle, konnyaku, mugicha (barley water), medicine
	Bitterness (Food)	Bitter taste of common food	Isoalpha acid, picric acid, absinth, rabdoshia japonica, anion surfactant, etc.	Oolong tea, vegetable soup, tofu, Japanese sake, beer, scorched meat,
	Astringency	Taste of tannin and catechin	Tannin acid, gallic acid, chlorogenic acid, epigallocatechin etc.	Wine, tea, chocolate, grape, berries

Attachment 1: Study of markets, consumers and value chains for dried beef snack products, both domestically and in key export markets

Jim's Jerky has identified a real opportunity to develop innovative new snack products based on red meat and incorporating other protein sources such as nuts, for the retail and route markets in Australia and South-East Asia. As we are aware consumers are well-educated about health and wellness and have a strong understanding of ingredients like Conjugated Linoleic Acid (CLA), Omega- 3s and antioxidants, the industry has faced an uphill battle in the perception of meat. Whilst Meat maybe perceived as not healthy by some, meat snacks provides an opportunity to promote to a new generation of consumers the health benefits of consuming meat.

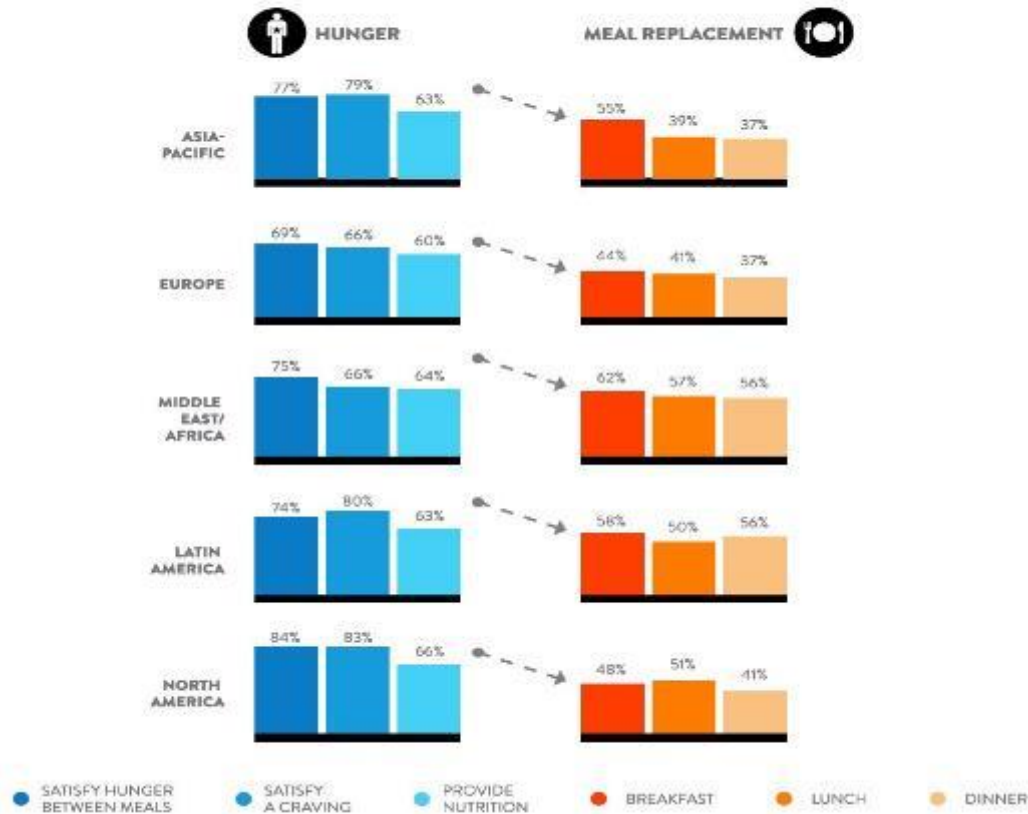
This project aligns well with MLA's goal to increase the market demand for red meat via new high value product and market development which will translate into increased value and incremental volume back to producers. Snacking is one of the biggest trends in food and health, affecting every category, every type of food and beverage and helping create a blurring of boundaries between categories/channels.

Snacking is no longer relegated to a bit in part in our diets but is now seen as being a significant contributor, meaning that for most it is required to have more 'food credentials'

The snacking behaviors of younger consumers is a strong driver of the meat snack segment, with Consumers aged 34 and under are more likely to prioritize meat in their diets than their older counterparts. This, combined with their increased propensity to snack, has considerably boosted opportunities in the meat snack segment. Such snacks also benefit from their perceived nutritional superiority compared with traditional potato and corn chips, and relative uniqueness, which is particularly appealing to younger consumers seeking new and unconventional consumption experiences.

From the chart below you see that 77% of Asian consumers are snacking to satisfy hunger between meal and the main snacking occasions for Asia are breakfast time 55% and lunch 39%, both the motivation for snacking and the meal replacement times are perfect for protein pack red meat snacks.

THINKING ABOUT THE SNACKS YOU ATE IN THE LAST 30 DAYS,
WHY DID YOU CONSUME THESE SNACKS?



Source: Nielsen Global Snacking Survey, Q1 2014

Again, Meat snack premiumization has challenged category conventions, an important component of this trend is the evolution of meat snacks beyond conventional jerky and sausage sticks. Manufacturers are increasingly experimenting with a range of proteins, formats, and gourmet flavors to elevate consumption from convenience-store snacks to an exciting taste experience and even

credible meal replacement and/or accompaniment. Improved sourcing transparency and ethical production of such offerings is also enhancing premium credentials.

One of the key factors Australian red meat has in its favor is the provenance of its product and we should couple this with the wide range of beef cuts available to develop a smorgasbord of Australian jerky product which will excite and delight our targeted consumers. This strategy has proved successful in the potato chip and adult beverage sector where it drove increase value into the category.

Provenance to gain ground as Consumers go in search of novelty

Drivers of the Growth in Craft Snacks



2014 and 2015 have seen a surge in savory snacks, particularly crisps, emphasising the heritage and provenance of their ingredients.



Flame Grilled



Caramelized Onion
Lobster



Chardonnay
Wine Vinegar

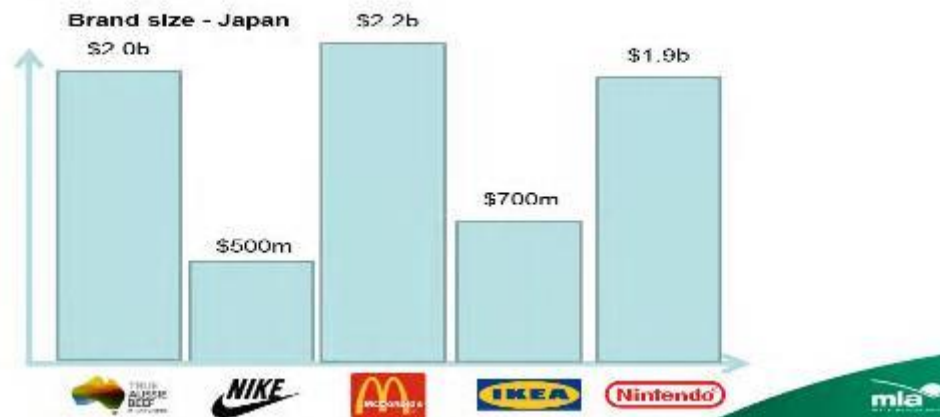
Figure 4: Kerry Foods

With consumer awareness levels as shown in the chart below it would be remiss of the Australian red meat industry not to try and

capitalize on such a strong branded presence in some of its largest markets in Asia.

New entrants are providing meat in more convenient formats, such as bars and jerky, and earning higher margins. In these products meat is often just one ingredient of many (although it may be the most important one) along with vegetables, fruits, and/or grains.

Aussie beef in Japan is a national consumer brand (with a small budget)



And ultimately the following simple questions need to be answered:

#1 - Is there a need for this product?

Is there an important unsatisfied consumer need?

Is there a job to be done?

#2 - Can we address this need?

Can we reliably deliver a competitively superior solution?

#3 - Is it worth it?

Can we sustainably create and capture value?

ASEAN key cities and population



Figure 6: South East Asia