



# final report

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## Goat Beauty Cream – Proof of Concept development and testing

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## **Abstract**

This project considers goat fat, rather than the more common beef fat, for use in beauty products with a proof of concept developed and tested. This initiative seeks to identify and ideate high value opportunity spaces via new usages and occasions for Australian goatmeat and its by-products and aligns with MLA's 2Morrows Foods Program, health and wellness trend. This was done through product development, lab assays, and primary market research. Two goat tallow-based beauty products were created and sent out to over 130+ trial customers. 102 customers responded to a product survey. The results of this research have found that there is potential for goat tallow beauty products to enter the market as a competitive high value-added alternative to beef fat products.

## **Executive summary**

This project considers goat fat, rather than the more common beef fat, for use in beauty products with a proof of concept developed and tested. This initiative seeks to identify and ideate high value opportunity spaces via new usages and occasions for Australian goatmeat and its by-products and aligns with MLA's 2Morrows Foods Program, health and wellness trend. This was done through product development, lab assays, and primary market research.

Two goat tallow-based beauty products were created and sent out to over 130+ trial customers. 102 customers responded to a product survey. The results of this research have found that there is potential for goat tallow beauty products to enter the market as a competitive high value-added alternative to beef fat products.

This research will inform our next steps moving forward as a business, as we now have market validation for our products, and will look to launch our go-to-market strategy. For the industry at large, this research shows that goat-based beauty products have the potential to enter the personal skincare industry and acquire significant market share and acceptance, and that goat tallow can have a potential high value-added use in beauty products.

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# 1 Background

Far from a new idea, vitamin-packed tallow-fat derived from animals was traditionally used in candles, balms and ointments before being replaced by chemical and petroleum-based products. Today there has been renewed interest for chemical-free moisturizers using tallow to cure everything from dry skin to dull hair. But now, especially with the increasing popularity of the Paleo diet, animal fat's natural lipids are back on trend (see recent MLA project V.RMH.0003 - <https://www.mla.com.au/research-anddevelopment/search-rd-reports/final-report-details/Exploring-High-Valued-Opportunities-for-NaturalFlavour-and-Wellness-extracts-derived-from-red-meat-2Morrows-Foods/4263>), with others touting its inclusion in the beauty space as desirable for being free of potentially irritating chemicals. Unlike many commercially-produced beauty products, those made with tallow typically do not contain foaming agent sodium lauryl sulfate, anti-bacterial chemical triclosan, or titanium dioxide, a dye.

This project will consider goat fat rather than the more common beef fat with a proof of concept to be developed and tested. This initiative seeks to identify and ideate high value opportunity spaces via new usages and occasions for Australian goatmeat and its by-products and aligns with MLA's 2Morrows Foods Program, health and wellness trend. The research will be led by The Gourmet Goat Lady who will add value to their goat kidney fat and goat bone broth reduction prototype products, with key findings presented as a case study for wider dissemination to the Australian red meat industry.



*Figure 1: Frank & Geri Skincare packaging*

## 2 Project objectives

The following key objectives drove the research in developing a high value strategy for the development of goat beauty cream products:

- Develop proof of concept goat beauty cream – list product/process specification, yields and indicative costings
- Complete lab assay and develop concept artwork with ingredient listing composition, and product description and intended use labelling
- Complete series of interviews with customers/buyers to test concept and value proposition(s) for Australian goat beauty cream – capture key insights
- Final Report – present brief summary of approach taken and findings and showcase the developed goat cream concept. Include assumptions and findings in a Business Model Canvas Tool to capture desirability-feasibility-viability criteria. List recommended next steps and what is the estimated value multiplier that has been created in transforming raw goat bone/fat input into beauty cream.

### 3 Methodology

This project was conducted in line with an academically and industrially aligned Design Led approach; also commonly referred to as Design Led Thinking (DLT), Design Thinking or Innovation Capacity.

Businesses, researchers and product designers have historically recognised that standard approaches to project management, particularly in contexts defined through high innovation, product development and exploration, are not suited to competently administering challenges and changes in operating environments and business needs. When undertaking product innovations and developing a high value strategy seeking to exploit opportunities in international and export markets, diversification of both macro and micro challenges, further eradicate the value of adopting a standardised approach to project management. Consequently, Design Led Thinking has been utilised by practitioners, businesses and researched through academia, as a highly valuable methodology for developing innovative outcomes, whether through product developments, strategic considerations or process improvements.

Design Led Thinking, or what was initially coined as Design Thinking, gained traction and adoption for business purposes at Stanford University in the 1980s and 1990s. Rolf Faste and David Kelley, two proponents that advanced Design Thinking, in an integrated industry and academic setting. Design Led Thinking differs from traditional scientific methods for problem resolution, which are largely characterised through hypothesis testing, as its methodology is designed to achieve practical, creative resolutions of problems, with consideration of emotional content and ambiguous aspects of the problem. This can often be overlooked when utilising scientific approaches. According to a 2014 assessment by the Design Management Institute, companies that utilise Design Thinking – such as Apple and IBM – have outperformed the S&P 500 by 219% over the past ten years. The relevancy of such an approach to an innovative market opportunity; as is present in the case of Frank & Geri Skincare and other value-added red meat producers currently expanding business into China, the UAE and other markets, is evident.

Due to the creative and innovative nature of the Design Led Approach, there exists a large number of frameworks, toolkits, models and methods that have been constructed in order to best guide the strategic process, maximising positive outcomes and innovative solutions for businesses. Intensive and extensive research has been undertaken by Frank & Geri Skincare, in conjunction with Haines Consulting Group, in order to analyse and evaluate various toolkits and methods to measure alignment with this project. From the research and analysis undertaken, it has been evaluated that the majority of Design Led methodologies comprise of the following five stages (or their interpretative equivalents), which encompass a set of micro-stages within each point:

1. *Empathise*: Gain an empathetic understanding of the problem you are trying to solve.
2. *Define*: Put together the information you have created and gathered during the empathise stage.
3. *Ideate*: After growing to understand your users and their needs, designers are ready to start generating ideas.
4. *Prototype*: Produce versions of the product in order to investigate features and real-time solutions to problems.
5. *Test*: Rigorous testing of the product and market strategies using the best solutions identified during the prototyping phase.

Due to the innovative and developmental nature of the process, the methodology is cyclical, both collectively and intra-cyclical between sub-stages where further research, developments or insights are required to find the best workable solution for the problem.

After extensive evaluation of various frameworks, particularly with regards to alignment of project objectives, industry and food processing requirements and expected outcomes, the following Design Led Framework has been selected for use in this project.

This specific Design Led Thinking framework is taken from Jeanne Liedtka and Tim Ogilvie’s *Designing for Growth: A Design Thinking Tool Kit for Managers*.

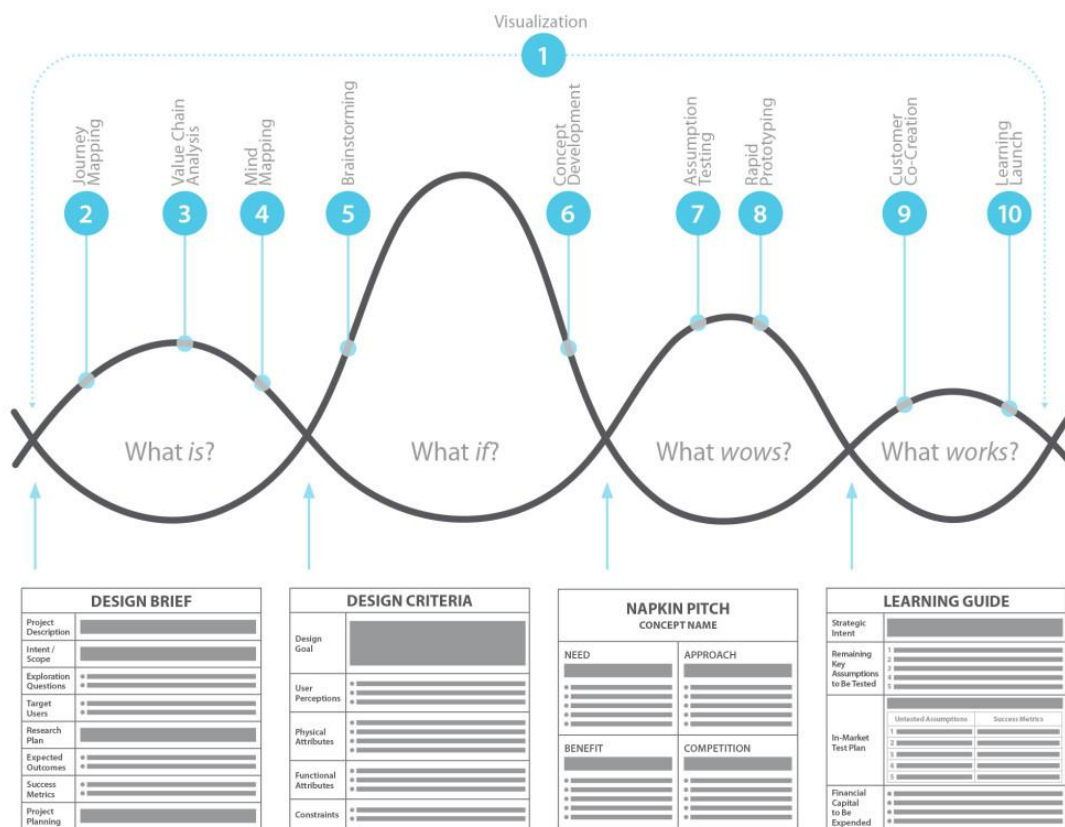


Figure 2 Design Led Thinking Model

Author’s Jeanne Liedtka and Tom Ogilvie state the following about this model:

*“The analytics-first mindset works fine for process improvement, but not for innovation. Our over-reliance on analytics denies our human capacity for creativity and results in uninspiring products and services, low growth, and pessimism about the future.*

*Design thinking is the way out of this trap. Great growth opportunities are indistinguishable from bad ideas at first, and there is no handy source of data to tell you which is which. Only a customer playing with a prototype can answer that.”*

This framework was selected due to its customer-centric approach, emphasis on establishing key points of difference and value-added propositions, as well as its logicity and functionality aligning



with the regular processes involved in food production and development. There is a clear emphasis on product offerings – rather than merely services – which correlates with Frank & Geri Skincare’s need to establish product offerings that elicit significant perceived value from consumers. This specific model’s integration of strong customer-driven problem solving applications is also of high importance for this project, where Frank & Geri Skincare are seeking to build a strong brand base in the domestic market.

In summary, the key approaches undertaken included:

1. Visualisation
2. Journey Mapping
3. Value Chain Analysis
4. Mind Mapping
5. Brainstorming
6. Concept Development
7. Assumption Testing
8. Rapid Prototyping
9. Customer Co-Creation
10. Learning Launch



*Figure 3 Frank & Geri skincare*

## 4 Results

### 4.1 Proof of Concept Goat Beauty Cream

#### 4.1.1 The Product

Based on the above methodology, a technical process for the creation of the goat beauty cream was created as follows:

1. Obtain fat/bones
2. Process fat/bones and render slowly at low heat till reduced to tallow
3. Strain & set
4. Blend tallow according to formula
5. Add essential oils for benefit to the skin and fragrance
6. Final set for desired end result
7. Package and label

Using this process, two viable products have been created:

- Wisdom Face Balm 50g RRP \$84.00
- Signature Balm 50g RRP \$44.00



Figure 4 Frank & Geri product concepts

Based on small batch sizes, costing is as follows:

**Wisdom Face Balm 50g RRP \$84.00**

-Cost of raw ingredients- estimated to be less than \$3.00 per unit –

Fat & Bones \$12/kg

7kg Bones= 920g Tallow  
 800g Kidney Fat = 660g Tallow  
 1580g Tallow = 32 X 50g jars of Balm

@\$93.60 for 7.8kg Bones & Fat = \$2.90/50g jar

Other ingredients:

Essential Oils to Produce 32 X 50g Jars Balm

Wholesale Cost:	
Frankincense	\$121/100ml
Sandalwood	\$451/100ml
Myrrh	\$176/100ml

10ml of each essential oil is required to produce 1580g balm

Frankincense = \$1.21 X 10 = \$12.75  
 Sandalwood = \$4.51 X 10 = \$47.50  
 Myrrh= \$1.76 X 10 = \$17.60

Total cost of essential oils \$77.85 /1580 g Balm = 32 X 50g Jars = \$2.43/50g Jar

Jars \$2.66@  
 Labels .60c@  
 Shipping of jars & labels .50c@

**Total cost to produce 1 X 50g jar of Wisdom Face Balm = \$9.09 (GST inclusive)**

Notes on costing:

The costs of essential oils, jars, labelling & shipping reduces with larger quantities.  
 Eg Frankincense essential oil costs \$121/100ml or \$990/1L

**Signature Balm 50g RRP \$44.00**

(Signature Hand Balm, Signature Heel Balm, Signature Face Balm)

-Cost of raw ingredients- estimated to be less than \$3.00 per unit –

Fat & Bones \$12/kg

7kg Bones= 920g Tallow  
800g Kidney Fat = 660g Tallow  
1580g Tallow = 32 X 50g jars of Balm

@\$93.60 for 7.8kg Bones & Fat = \$2.90/50g jar

Other ingredients:

Essential Oils to Make 32 X 50g Jars Balm

Frankincense \$121/100ml
Geranium \$148/100ml

10ml of each essential Oil to make 1580g tallow

Frankincense = \$1.21 X 10 = \$12.75

Geranium = \$1.48 X 10 = \$14.80

Total essential oils \$27.50 /1580 g Balm = 32 X 50g Jars = \$0.90/50g Jar

Jars \$2.66@

Labels .60c@

Shipping of jars & labels .50c@

**Total cost to produce 1 X 50g jar of Signature Balm = \$4.66 (GST inclusive)**

### 4.1.2 Lab Assays

Lab assays were arranged with and completed by Symbio Laboratories in Brisbane on 05/05/2020 in relation to glyphosate and mould / yeast. The certificate of analysis for both assays have been attached as .pdfs.

- Mould and yeast assay certificate number: B902428-A [R00]
- Glyphosate assay certificate number: B902428-B [R00]

**Symbio LABORATORIES**  
CERTIFICATE OF ANALYSIS

**Symbio LABORATORIES**  
Proudly AUSTRALIAN  
ABN: 82 079 645 015

Certificate Number	B902428-A [R00]	Page	1/1
Client	Frank & Geri Skincare	Registering Laboratory	Brisbane
Contact	Deb Hall	Contact	Customer Service Team
Address	1 Townsend Lane Gilgandra NSW 2827	Address	52 Brandl Street, Eight Mile Plains, QLD 4113
Telephone	0438 687 559	Email	admin@symbiolabs.com.au
Order Number	---	Telephone	1300 703 166
Job Description	Tallow	Date Samples Received	05/05/2020
Client Job Reference	---	Date Analysis Commenced	05/05/2020
No. of Samples Registered	1	Issue Date	10/05/2020
Priority	Normal	Receipt Temperature (°C)	20
		Storage Temperature (°C)	25

**NATA**  
Accreditation No. 2465  
Accredited for compliance with ISO/IEC 17025 - Testing

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**Definitions**

[ <: Less Than | >: Greater Than | RP: Result Pending | ~: Estimated | MPN: Most Probable Number | CFU: Colony Forming Units | ---: Not Received/Not Requested | | : Subcontracted Analysis | NA: Not Applicable | [NT]: Not Tested | LOR: Limit of Reporting | TBA: To Be Advised | ND: Not Detected | \* Test not covered by NATA scope of accreditation | # Result derived from a calculation and includes results equal to or greater than the LOR | IH: Inconsistent results possibly caused by sample homogeneity

**Authorised By**

Name	Position	Accreditation Category
Laurel Mak	Laboratory Manager - Microbiology	Environmental and Food Microbiology

**Sample Information - Client/Sampler Supplied**

Sample ID	Sample Description	Sample Matrix
B902428-A/1	Tallow 25038BKF	Other - Tallow

**Analytical Results**

Compound/Analyte	Method	LOR	Units	B902428-A/1
Mould	M3.0 - AS 5013.29	100	CFU/g	<100
Yeast	M3.0 - AS 5013.29	100	CFU/g	<100

**Analysis Location**

All in-house analysis was completed by Symbio Laboratories - Brisbane.

**Report Comments**

Sampling was conducted by the customer and results pertain only to the samples submitted. Responsibility for representative sampling rests with customer.

**Symbio LABORATORIES**  
CERTIFICATE OF ANALYSIS

**Symbio LABORATORIES**  
Proudly AUSTRALIAN  
ABN: 82 079 645 015

Certificate Number	B902428-B [R00]	Page	1/2
Client	Frank & Geri Skincare	Registering Laboratory	Brisbane
Primary Contact	Deb Hall	Contact	Customer Service Team
Address	1 Townsend Lane Gilgandra NSW 2827	Address	52 Brandl Street, Eight Mile Plains, QLD 4113
Telephone	0438 687 559	Email	admin@symbiolabs.com.au
Order Number	---	Telephone	1300 703 166
Job Description	Tallow	Date Samples Received	05/05/2020
Client Job Reference	---	Date Analysis Commenced	05/05/2020
No. of Samples Registered	1	Issue Date	05/05/2020
Priority	Normal	Receipt Temperature (°C)	Room Temperature
		Storage Temperature (°C)	Ambient (25 °C)

This report supersedes any previous revision with this reference. This document must not be reproduced, except in full. Sample preparation was conducted in accordance with Agricultural and Veterinary Chemicals Code (MRL Standard) Instrument 2019, Table 2, unless otherwise indicated in the 'Report Comments' section. Measurement Uncertainty is available upon request or via www.symbiolabs.com.au/login. If the laboratory was authorised to conduct testing on samples received outside specified conditions, results may be impacted depending on the nature of the deviation.

**Definitions**

[ <: Less Than | >: Greater Than | ---: Not Received/Not Requested | NA: Not Applicable | ND: Not Detected | [NT]: Not Tested | CL: Confidence Level | NL: No MRL Listed | MP: Mixed Food | LOR: Limit of Reporting | TBA: To Be Advised | | : Subcontracted Analysis | \* Test not covered by NATA scope of accreditation | # Result derived from a calculation incorporating the robust definition of chemical defined in the Agricultural and Veterinary Chemical Code (MRL Standard) Instrument 2019. Results equal to or exceeding the LOR are included in the calculation. | IH: Inconsistent results possibly caused by sample homogeneity

**Authorised By**

Name	Position	Accreditation Category
Gavin Peirson	Chemical Residue Laboratory Manager, Brisbane	Environmental and Food Chemistry

**General Comments**

MRL information is only provided in the event of a chemical detection exceeding the LOR on a single commodity. MRL information is not provided for mixed foods. Further information regarding mixed food MRLs can be obtained from Food Standards Code, part 3.4.2 - Agri-Set Chemical. In accordance with the Queensland Chemical Usage (Agricultural and Veterinary) Control Act 1985, the laboratory must discharge its lawful obligations in accordance with Division 4, Section 115 & 116 and notify the standards officer of any potential MRL exceedances. Disclaimer: All reasonable measures have been taken to ensure the MRL information provided is accurate and current. No liability is accepted by Symbio Laboratories for any occurrence arising from the adoption of any of the information.

**Symbio LABORATORIES**  
Proudly AUSTRALIAN

Client	Frank & Geri Skincare	Job Description	Tallow
Certificate Number	B902428-B [R00]	Order Number	---
Page	2/2	Received Date	05/05/2020

**Analytical Results Summary**

Sample ID	Sample Description - Client/Sampler Supplied	Matrix	Compound/Analyte	LOR	Units	Result	MRL
<b>OR15.3 Residue Scan</b>							
B902428-B/1	Tallow 25038BKF	Other - Tallow	AMPA	0.01	mg/kg	<0.01	---
B902428-B/1	Tallow 25038BKF	Other - Tallow	Glufosinate	0.01	mg/kg	<0.01	---
B902428-B/1	Tallow 25038BKF	Other - Tallow	Glyphosate	0.01	mg/kg	<0.01	---

**Analysis Location**  
All in-house analysis was completed by Symbio Laboratories - Brisbane.

**Report Comments**  
Sampling was conducted by the customer and results pertain only to the samples submitted. Responsibility for representative sampling rests with customer. MRL - Maximum Residue Limit as defined by Agricultural and Veterinary Chemicals Code (MRL Standard) Instrument 2019.

## 4.2 Customer interviews

### 4.2.1 Data Set

Our survey was undertaken by 102 respondents who had trialled our products. Of these respondents, 59.80% had never used goat-based skincare products before.

The results of all the multiple-choice questions are summarised in tables in an attached .pdf.

Key statistics:

- 96.08% had no concerns about the inclusion of goat tallow in the product
- 94.10% of respondents had at least a somewhat positive first reaction to the product
- 89.22% of respondents believed the quality of the product to be high or very high.
- 76% of respondents believed that they at least “probably needed” the product.
- 65% of respondents said it was very or extremely likely that they would buy the product today if it were available.
- 61.76% of respondents had positive thoughts about the scent
- 53.53% of respondents said they were very or extremely likely to replace their current product with this product
- 45% of respondents would be very likely to recommend the product to a friend or colleague.

### 4.3 Business Model Canvas

<p><b>KEY PARTNERS</b></p> <p>Raw material suppliers (The Gourmet Goat Lady Bourke Street Butchery)</p> <p>Packaging &amp; labelling suppliers</p> <p>Community venues for market stalls</p> <p>Retailers</p> <p>Australia Post</p>	<p><b>KEY ACTIVITIES</b></p> <p>Rendering Tallow from goat fat &amp; bones.</p> <p>Formulating &amp; manufacturing product</p> <p>Marketing</p> <p>Selling</p>	<p><b>VALUE PROPOSITION</b></p> <p>Using fat &amp; bones, by-products of goatmeat production, to provide safe &amp; quality, natural skincare products for customers looking for skincare products free from potentially irritating ingredients.</p>	<p><b>CUSTOMER RELATIONSHIP</b></p> <p>Personal @ markets</p> <p>Website</p> <p>Social media; Facebook &amp; Instagram</p> <p>Personal with retailers</p>	<p><b>CUSTOMER SEGMENTS</b></p> <p>Customers looking for skincare products free from potentially irritating ingredients.</p> <p>Focusing on 4 overlapping groups:</p> <ul style="list-style-type: none"> <li>-Women 40+</li> <li>-Customers with dry/cracked skin</li> <li>-Families choosing a lifestyle that is free of ingredients that are potentially irritating &amp; disruptive.</li> <li>-Customers wanting to support local &amp; small business</li> </ul>
<p><b>COST STRUCTURE</b></p> <p>Raw ingredients</p> <p>Equipment</p> <p>Packaging/Labelling</p> <p>Advertising</p> <p>Labour</p>	<p><b>REVENUE STREAMS</b></p> <p>Product sales- Internet</p> <ul style="list-style-type: none"> <li>-Wholesale to Retail Stores</li> <li>-Markets/Expos</li> </ul>			

## 5 Discussion

### 5.1 Key Insights

From the above findings, it seems quite clear that the market is willing to accept goat tallow beauty products. Almost all respondents had no concerns with the use of goat tallow, and the majority found the product to be of a high enough quality to replace their current beauty products.

Despite this, almost two thirds of the respondents had never used goat-based skincare products before. This suggests a lack of awareness and / or availability of goat-based products, as it appears that the majority of those who trial such products view them favourably and have no reason to avoid them.

Another interesting insight was the reaction to the scent & consistency of the product. On a sliding scale from 0 to 10, with 5 being perfect, the average rating of the scent was a 6, indicating the need for more fragrance & smoother texture. As scent & consistency play a large part in the average purchasing decision of beauty products, this suggests two potential areas for improvement for the product.

### 5.2 Project Objectives Met

**Objective 1: Develop proof of concept goat beauty cream – list product/process specification, yields and indicative costings**

This objective was successfully met. Two products have been created, with costing, process specification, and recommended retail price completed and noted in section 4.1.1. It is important to note, however, these processes and costings are based on a small batch size and are likely to change as production scales.

**Objective 2: Complete lab assay and develop concept artwork with ingredient listing composition, and product description and intended use labelling**

This objective was successfully met. Two lab assays were completed for glyphosate and mould / yeast, with the certificates of analysis attached via .pdf. Concept artwork has been completed and labels designed for intended use on our products. Labelling art below:





Figure 5 Frank & Geri concept label

**Objective 3: Complete series of interviews with customers/buyers to test concept and value proposition(s) for Australian goat beauty cream – capture key insights**

We were able to gather 102 survey respondents who had trialled our products. The 23 question survey provided us with many key insights. The most important being that consumers are willing to accept goat tallow beauty products and that our product is seen as “high quality” and desirable to those who have trialled it. The product’s scent was perhaps the least well received quality of the product (although not overwhelmingly negative), suggesting that it is a key area for improvement in finalising the product before mass production.

Another interesting insight was how few respondents had tried goat-based skincare products before, suggesting a lack of knowledge or awareness on goat skincare products. This insight will play a major part in the marketing efforts of not just our brand, but all brands selling goat-based skincare products.

**Objective 4: Final Report – present brief summary of approach taken and findings and showcase the developed goat cream concept. Include assumptions and findings in a Business Model Canvas Tool to capture desirability-feasibility-viability criteria. List recommended next steps and what is the estimated value multiplier that has been created in transforming raw goat bone/fat input into beauty cream.**

Please refer to section 4.3 that showcases our Business Model Canvas.

Based on our research and findings, our next steps are to go-to-market and launch the products. The products we will launch are Wisdom Face Balm, Signature Face Balm, Signature Heel Balm, and Signature Hand Balm. To ensure a successful launch, we will utilise several different marketing channels, including social media, search engine, and email marketing in order to increase brand awareness and gain customers. The most important objective initially will be to get potential

customers trying the products, as our research has shown that the majority who took part in the trial intend to continue using the products.

The value multiplier that has been created in transforming raw goat bone/fat input into beauty cream is: 15 to 29. This range was derived from the following calculation.

Recommended Retail Price ÷ Cost of Raw Material       $\$84 \div \$2.90 = 29$  for the Wisdom Face Balm

Recommended Retail Price ÷ Cost of Raw Material       $\$44 \div \$2.90 = 15$  for the Signature Balms

## 6 Conclusions/recommendations

In conclusion, it was found that goat-based beauty creams are accepted by consumers and seemingly preferred by many after trialling. Despite this, few consumers have had experience with goat-based beauty products before, suggesting there remains a barrier of entry that goat-based beauty cream manufacturers must work to break down in order to increase market adoption. As consumer reception to the products was overwhelmingly positive, we will proceed with a go-to-market strategy to launch our products – Wisdom Face Balm, Signature Face Balm, Signature Heel Balm, and Signature Hand Balm.

We would recommend that future R&D revolve around perfecting the formula for goat tallow balms, especially in relation to creating a well-received scent, improving the consistency, and methods for increasing market adoption of goat-based beauty products. If these three areas are well researched and studied, it is our belief that there is a large opportunity for goat-based beauty products to gain significant market share in the beauty industry.



Figure 5 Frank & Geri Skincare

## 7 Key messages

As a result of this project, the broader cosmetic industry has the opportunity to be early adopters & transition from petroleum-based ingredients to a natural substance that has previously been classified as waste. Our research shows overwhelming support for the development of these goat tallow balms. Currently there appears to be no goat tallow skincare products available domestically or internationally. We can use this as a point of difference to our advantage in the uptake of these innovative products.

Our recommendation is that goat meat manufacturers look to supply goat tallow to artisan skincare developers for other possible goat bone & tallow products, in order to create mutually beneficial relationships that will increase the economic outcomes of both the producers and suppliers as more goat-based beauty products enter the market. This will feed directly into current market trends for sustainable, Australian made, natural and chemical free products, which has resulted from growing consumer awareness & demand. This will provide economic gain for producers & future market development, benefiting the Australian economy with export opportunities.



## **8 Appendix**

Lab assays: attached pdf's

Data set: Attached survey results