



final report

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Value Added Red Meat with inclusion of Lupin

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Abstract

Purpose of the project was to investigate the areas where inclusions of natural Lupin will increase the consumption of Australian red meat through identifying new consumer occasions, consumer drivers and with a range of consumer products in areas such as probiotics and dietary fibre that offer distinctive health benefits to the Australian Red Meat industry globally.

The project was broken down into the following stages:

1. Market Gap Analysis – What are consumer demanding from red meat and are there any global suppliers servicing these consumer needs.
2. Identify opportunities for growth and new product concepts - where could we utilize Lupin to drive red meat consumption.
3. Proof of Concept - Prepare unique Red Meat and Lupin products for consumer tasting and product concept evaluation.
4. Propose new red meat product ranges – New product development.
5. Conduct cost benefit analysis (CBA) – 3rd party evaluation of the opportunities for the red meat value chain and evaluation of the consumer proposition.
6. Commercialization Strategy - for product launch and launch timetable.

Products that were favourably assessed include Mince, Crumbed Beef, Beef Strips, Popcorn beef, Lamb Strips and Meatballs with a range of trial brands developed to gauge health messaging, brand imagery and product positioning now completed with a projected \$9.4M pa benefit to Australian Red Meat / Lupin industry by 2017 identified.

Table of Contents

1	Inclusion of Lupin in Red meat – the opportunity.....	4
1.1	What is Lupin, and who is Lupin Foods Australia.....	4
1.2	The benefits to red meat by using Lupin inclusions	5
2	Project objectives	6
3	New product opportunities for the red meat industry using Lupin inclusions	7
3.1	Product concepts.....	7
3.2	Value Proposition	9
4	Conclusions/recommendations	12
5	Bibliography	12

1 Inclusion of Lupin in Red meat – the opportunity

1.1 What is Lupin, and who is Lupin Foods Australia

The Lupin story begins in Western Australia where the southwest corner of the state is one of the world's most productive grain growing regions and where the vast majority of Lupins are now produced.

The Mediterranean style climate is absolutely perfect to cultivate this nutrient rich crop. Lupin Foods Australia, founded in 2012, is a food company focused on sourcing the highest quality Lupins to manufacture nutritionally rich, great tasting food.

Lupin Foods Australia is a wholly owned subsidiary of Co-operative Bulk Handling Limited (CBH Group); an organization owned by the grain growers of Western Australia.

Being a part of the CBH Group means that Lupin Foods Australia has a direct stake in ensuring that the Lupins we process are sourced from growers employing the most sustainable farming systems, guaranteeing that only the finest quality Lupins go into making our range of super food snacks and meals.

Awards for Lupin Domestically and on the International stage

Lupin Foods Australia (LFA) was voted best new environmentally sustainable initiative at Gulf Foods, 2014 from more than 250 entries from more than 19 countries at what is the world's largest annual food expo.

In June 2014, LFA was awarded the Industry Innovation Award by the Australian Institute of Food Science and Technology. This highly prestigious award recognizes a significant new development in a process, product, ingredient, equipment or packaging, which has achieved successful commercial application in any section of the Australian food industry within the last six months to five years.



During 2014, LFA won the coveted Western Australia Signature Dish - The winning dish was Dorper Lamb Cutlets with a Lupin-based crust, accompanied by a sweet potato salad with Moroccan flavours.

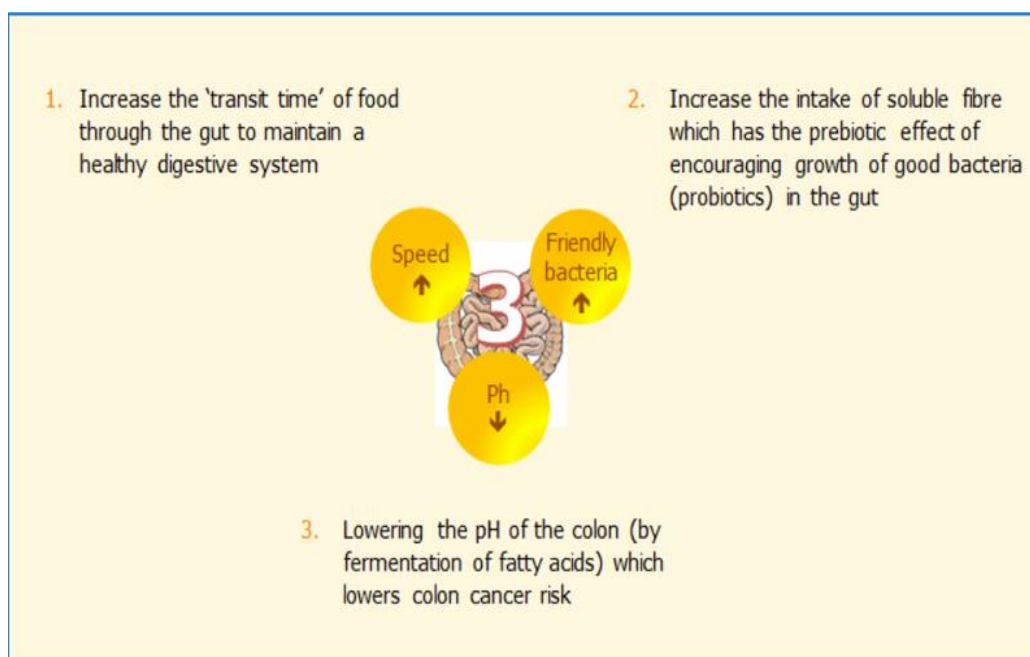
1.2 The benefits to red meat by using Lupin inclusions

Red meat provides the zinc, which maintains an intact mucus layer (a part of the immune system), preventing entry of toxic elements into the body whereas the Lupin is an excellent 'food' for probiotics required to produce important products required for the normal function of the immune system. In other words, each contribute to maintaining a healthy immune system in a different way.

There is a need for a variety of dietary fibres for gut health. These include both insoluble fibres such as wheat bran, soluble fibres such as oats and prebiotic, such as Lupin.

Each plays different roles in different parts of the gut. All are needed for optimal gut health.

During the research we introduced the Lupin concept to the consumers via the simple three step image below:



Recent market analysis identified the current market analysis for red meat (Nielsen, 2014):

- Red meat is becoming more expensive
- Consumption numbers for red meat are declining
- Poultry is current enjoying impressive growth levels
- Poultry is seen as a better value alternative and perceived to be healthier
- Poultry seems to have a wider selection set for consumers to choose from
- Retailers have a protein/margin problem due to rising prices of red meat and its negative knock on effects on the rest of consumers shopping baskets
- Health/Wellness and convenience are key drivers in fresh globally
- Limited Red Meat offerings in the health and wellness space

- Need to challenge Poultry for the value conscious consumer
- Digestive health is becoming a big deal for consumers

This project could be a world first for red meat, a truly consumer driven innovation into the health and wellness category. It was found that:

- Red meat consumption is often limited because it's perceived as the "less healthy" option versus white meat for a couple of reasons:
 - Perceived as higher in fat
 - Can causes sluggish digestion
 - Can be hard to digest
- Researched consumers have some concern and guilt that the shortcuts they take (e.g. pre-prepared products like burgers, meatballs and schnitzel's) are not the best option, health wise, for their family

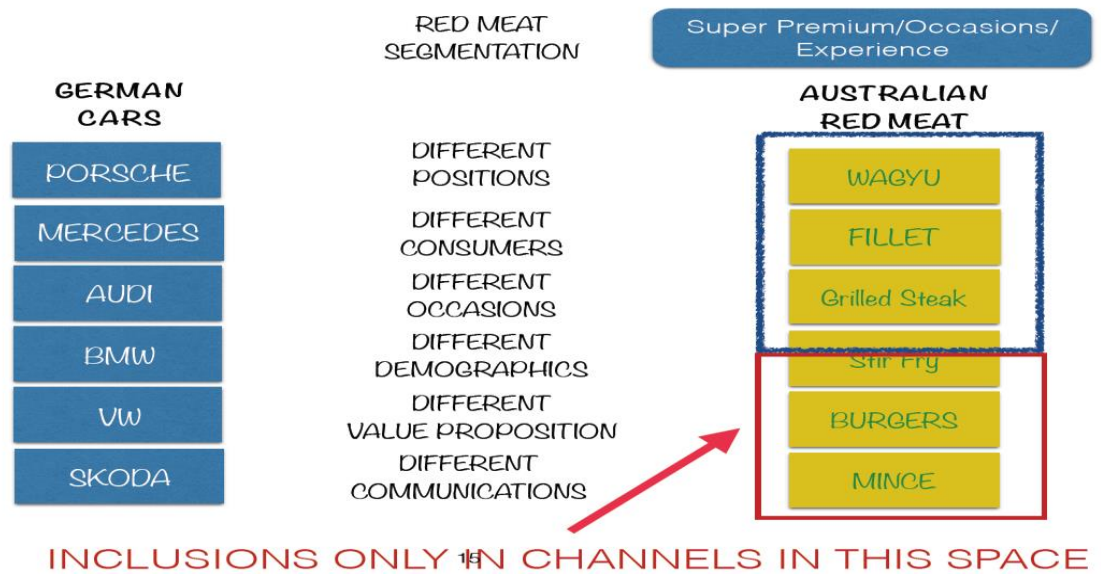
2 Project objectives

- "Gap Analysis" of existing meal product ranges and identify "commercial opportunities" for red meat and lupin combos to drive red meat consumption globally.
- Prioritise the "sweet spots" for red meat to use lupin combinations to drive the demand for red meat domestically and internationally
- Develop product concepts for consumer research
- Carry out preliminary consumer research
- Evaluation of product concepts
- Credibility of claims and ease of understanding of these claims by consumers
- Brief evaluation of potential packaging options
- Uncover consumer approach to diet and managing any concerns/health issues through diet.
- Initial consumer research to gain a better understanding of insights which drive consumption.
- Develop commercialisation plans built on a partnership between Lupin Australia and a Red Meat Value Adding company to commercialise these opportunities

3 New product opportunities for the red meat industry using Lupin inclusions

3.1 Product concepts

The chart below outlines the possible product areas where we believe the red meat industry can use Lupin to drive innovation, provide increased consumer usage occasions, increase yield and fill category gaps currently dominated by Poultry.



Based on the above criteria, we see a range of new red meat products which could be developed to offer a real competitive offering in categories where red meat does not have an offering today

Poultry Versatility			Red Meat	
Fresh	Frozen		Roasts	
Whole Chicken	Whole Chicken		Steaks	
Cooked Chicken	X		Stir Fry	
Breast Chicken	Breast Chicken		X	
Leg Chicken	Leg Chicken		X	
Chicken Wings	Chicken Wings		X	
Chicken Schnitzel	Chicken Schnitzel		X	
Chicken Nuggets	Chicken Nuggets		X	
Popcorn Chicken	Popcorn Chicken		X	
Chicken Strips	Chicken Strips		X	
Chicken Burgers	Chicken Burgers		Burgers	
Chicken Balls	Chicken Balls		Meat Balls	
Ready Meals	Ready Meals		Ready Meals	
Small Whole Chicken	Small Whole Chicken		Mini Roasts ?????	

FOMO Fear of Missing Out

Poultry Versatility			Lamb
Fresh	Frozen		Roasts
Whole Chicken	Whole Chicken		X
Cooked Chicken	X		Steaks
Breast Chicken	Breast Chicken		Chop
Leg Chicken	Leg Chicken		Kebab
Chicken Wings	Chicken Wings		X
Chicken Schnitzel	Chicken Schnitzel		X
Chicken Nuggets	Chicken Nuggets		X
Popcorn Chicken	Popcorn Chicken		X
Chicken Strips	Chicken Strips		Burgers
Chicken Burgers	Chicken Burgers		Meat Balls
Chicken Balls	Chicken Balls		Ready Meals
Ready Meals	Ready Meals		Mini Roasts ?????
Small Whole Chicken	Small Whole Chicken		

FOMO Fear of Missing Out

With the above red meat new product opportunities in mind, we developed a range of red meat products with varying Lupin inclusions levels, which would offer the consumer a real choice versus Poultry. In terms of red meat product development – Lupin is a healthier alternative to breadcrumbs or wheat flour traditionally used in meat dishes.

These products included, Mince, Crumbed Beef, Beef Strips, Popcorn beef, Lamb Strips and Meatballs. In addition a range of trial brands were developed to gauge health messaging, brand imagery and product positioning.



At the subsequent research groups consumers were given the opportunity to taste the range of red meat products made with varying Lupin inclusion rates and this is what consumers said:

1. There was no discernible 'taste' to Lupin in the red meat products tasted by the majority of the consumers in the trial ~ thus Lupin didn't impact the flavour
2. No discernible textural difference in the minced products
3. The crumb was described as *lovely and crunchy* by many (perhaps even an improvement on standard crumb!)
4. All the foods were attractive to look at and presented well (bearing in mind they were especially created for the groups)
5. The majority felt they could eat one or more of these foods as part of their diets - they were product offerings they already ate
6. Perceptual concerns about crumbed beef products were allayed after tasting

The consumer understands the benefits of red meat with Lupin inclusions and see the possible red meat range extensions as real alternatives as a source of protein versus Poultry in all categories researched.

Whereas, there is work to be done in raising the awareness of Lupin with consumers, the research indicates that once the benefits of Lupin with red meat is explained the consumer seems very likely to make any possible new products part of their everyday purchases.

3.2 Value proposition

Greenleaf Enterprises conducted their own 3rd party analysis on the project findings and came to the follow conclusions:

- a) Development of red meat Lupin products creates a number of value benefits across the entire supply chain. The Australian red meat sector has an opportunity to increase the value generated by red meat in the following ways:
 - Increases the market share volume and value of value-added beef resulting from health benefits of Lupin beef
 - Increases the utilization of low value meat products in value-added foods
 - Expands red meat value added food products and category mix to compete more directly against white meat offerings
 - Provides additional red meat products with alternative market opportunities
 - Increases per capita consumption of red-meat products
 - Elevates the health positioning of red meat with the end consumers
- b) Significant analysis has been carried out by industry experts on the potential size of the opportunity to Lupin and the Australian Red Meat Industry.
 - The numbers are based on trusted industry standard methodologies and deliver some interesting potential market volume and value
 - Please refer to Fig 1, Fig 2 and Fig 3

- The research and analysis points to a potentially lucrative opportunity for red meat with Lupin inclusions globally
- However these numbers are just assumptions and they need to be tested by real interactions with the consumer
- Some of the assumptions are on the low side particularly on the penetration of poultry at no more than 14% - so there is potential upside on these numbers
- Plus, during and post the test period we will learn more regarding the width and depth of possible new ranges which will deliver further revenue potential to the Australian red meat industry
- A proposed market test offers the Australian red meat and Lupin a priceless opportunity to test their “Lupin inside” strategy with real consumers
- Ultimately the consumer will decide so testing is the next crucial step

Figure 1: Value opportunity & benefits of value-added red meat lupin products

TOTAL BENEFIT		2015	2018	2023
Value opportunity		\$	\$	\$
Lupins Australia	Value of Lupin Meal	\$82,368	\$187,911	\$11,197,495
	Value of Lupin Husks	\$21,051	\$56,373	\$438,056
Domestic Markets	Domestic Food Service		\$3,216,193	\$12,009,984
	Domestic Retail Industry		\$5,313,543	\$17,300,993
	Cannibalisation of Chicken Markets		\$3,843,260	\$39,321,362
Internation Markets	Beef Patties	\$148,781	\$953,051	\$717,969
	Popcorn Beef	\$51,803	\$206,577	\$249,985
	Beef Schnitzel	\$207,212	\$863,120	\$999,938
	Beef mince	\$555,092	\$1,342,019	\$2,678,688
	Beef Meatballs	\$157,643	\$770,724	\$760,735
Total Market Opportunity		\$1,223,952	\$17,352,773	\$85,675,204
Costs	Marketing Costs	\$263,380	\$4,284,947	\$16,454,043
	Operating costs	\$225,395	\$3,666,966	\$22,366,206
Total Costs		\$488,775	\$7,951,913	\$38,820,249

Source – Greenleaf Enterprises – 2014

Figure 2: Market penetration showing the aggressive market growth strategy.

Market Opportunities - Domestic							
Market	Volume 2013 (MT)	Percentage of market penetration			Market opportunity (Volume of beef)		
		2018	2020	2023	2018	2020	2023
Food service	85,123	4%	9%	14%	2,988	7,244	11,501
Retail	189,468	3%	8%	13%	4,937	14,410	23,884
Cannibalisation of chicken	330,617	0.31%	2.01%	4.18%	3,571	24,381	54,283
Total Volume					11,496	46,036	89,667

Source – Greenleaf Enterprises – 2014

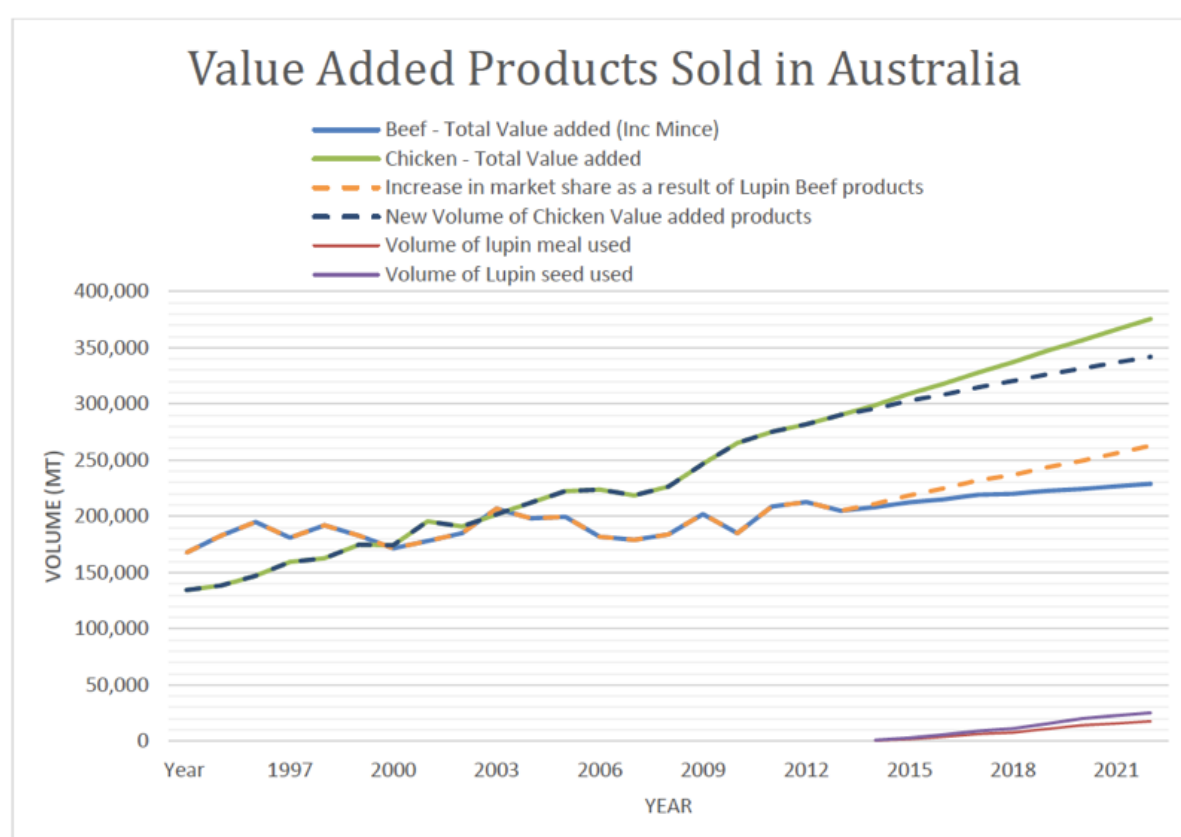


Figure 3: Current and forecasted volume of value added products sold in Australia (Data Source: (Australia Chicken Meat Federation (ACMF) Inc, 2011; Meat & Livestock Australia, 2014; OECD, 2014; United Nations, 2012))

Source – Greenleaf Enterprises – 2014

4 Conclusions/recommendations

As a result of the positive outcomes of the research combined with the highlighted market opportunities and value proposition, validated by Greenfield Enterprise, a comprehensive commercialisation plan has been developed and presented to MLA and Lupin Food Australia which showcase new product development pipeline of red meat products utilising lupin. This represents a truly distinctive and incremental demand opportunity for Australian red meat industry.

In addition, Lupin Foods Australia propose to continue to collaborate with existing partners in La Trobe University, Melbourne and University of Western Australia to examine further opportunities to identify and deliver more nutritious meal options for red meat consumer globally.

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