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PRESCRIPTIONS FOR GROWTH

Opportunities for Western Australian food and beverage firms in Foods for Health markets

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*Characterisation of export markets and business development opportunities for Western Australian food and beverage manufacturers in food for health markets
(DPIRD2021079)*

May 2021

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Executive Summary

WHO SPONSORED THIS PROJECT?

The Department of Primary Industries and Regional Development's (DPIRD) Food Industry Innovation Project (FI) has engaged with a wide cross section of food and beverage businesses in regional Western Australia and has helped businesses to upskill and upscale at both the industry level and individual enterprise level.

The purpose of the FI project is to enhance the viability and growth of food and beverage businesses that value add to raw agricultural products, with the aim of contributing to economic diversification and jobs growth in WA. The project has provided resources to identify market opportunities; facilitate business collaboration; develop new approaches to innovation, and; upskill businesses in marketing, promotion and other skills to build knowledge and understanding of opportunities across the premium food and beverage value chain.

FI work streams include enhancing the viability and growth of food and beverage businesses by supporting them to access market and industry insights and providing resources to support business growth (scale), particularly given the dominance of SMEs in the sector and in regional Western Australia.

WHY FOOD AND BEVERAGES?

Food and beverage manufacturing employed around 13,600 people in 2011, growing to around 16,000 people in 2018. Inter-industry models of the economy of Western Australia and other states show the direct economic impact resulting from increases in income and employment in this sector has the highest flow-on impact of any other sector, and also has a relatively high consumption or 'indirect effect'.

Western Australia has the second smallest food and beverage manufacturing industry in Australia, occupying only 8% of a \$127 billion market. Although small, it is starting to grow and is more job intensive than Western Australia's raw commodity exports. Food and beverage manufacturing is the largest manufacturing sub-group in Australia. Western Australia has a reputation for high quality produce and is in close proximity to Asian markets where there is growing demand for our premium products.

With an increasing global demand for safe and reliable premium foods (particularly coming from high growth Asian markets), the food and beverage sector can make a greater contribution to the diversification, growth and job creation opportunities in the Western Australian economy.

WHAT IS THE AIM OF THIS PROJECT?

Accordingly, this project "Opportunities for Western Australian food and beverage firms in Foods for Health markets" aims to assist Western Australian manufacturers to appreciate and target export market opportunities in food and beverage products that make a contribution to human health and animal health over and above their contribution to basic nutrition.

WHAT CONDITIONS ARE TREATABLE WITH FOODS?

The human body is a complex web of systems assembled over billions of years of evolution; and a lot can, and does, go wrong. We have simplified the complexity of the bodies issues down into ten major categories of "disease conditions". These disease conditions vary in their suitability to avoidance, management and treatment through food based products. As a general rule, food based products are best suited to disease avoidance and management. As an example of how food can help, epileptic fits (a brain disorder) can be effectively treated through strict adherence to a ketogenic diet.

WHERE SHOULD WE FOCUS TO HAVE AN IMPACT?

Humans are afflicted by a wide range of conditions. Healthy people can develop "conditions" in a range of ways. A range of factors and actions contribute to conditions. Most people are feeling "good" or better most of the time; however, at the same time, they are likely taking multiple health risks.

Infectious diseases range in terms of risk, from mild (the common cold) through to systemic (COVID-19). However, much as they are currently in the news, infectious diseases are not the major cause of health issues in most societies.

Non-infectious ("non-communicable") diseases are by far the largest killer globally (~70%). The four largest – cardiovascular disease, cancers, chronic lung disease and diabetes – alone account for 57% of all deaths. In addition, almost half the Australia population has chronic or long-term conditions.

Deaths from non-communicable conditions are growing across all target markets. In terms of cost to society, cancer, cardiovascular and metabolic/obesity related conditions stand out. While there is variance between markets, this is more a matter of degree; all markets suffer from costs from all conditions.

WHAT ARE FOODS FOR HEALTH (FFH)?

This project is focused on a narrow range of products at the intersection of food, indigenous traditions and modern medicine and clear definitions are used consistently throughout the project. By definition, the project deals with products that are classified as food rather than medicine; it targets products with scientific support. It targets sectors of society looking for varied solutions, beyond pharmaceuticals to growing health concerns.

Executive Summary

Pharmaceutical drugs and alternative medicines treat the same things, but only one can potentially be put in food (or other products). In an ideal world, we would have clear treatments for clear conditions; unfortunately reality on the ground in many categories is more complicated. There are no simple causes or easy solutions to most major issues.

In practice, foods can have an impact on multiple conditions; for example, green tea consumption has a wide range of beneficial effects. At the same time, multiple food-derived substances can have beneficial effects on specific conditions. Therefore, unlike pharmaceuticals, many foods for health products are formulated from a mixture of active ingredients.

CAN WESTERN AUSTRALIA WIN IN THIS SPACE?

Western Australia is good at producing safe, high quality food and the state has a large and well developed food & beverage industry. Western Australia has clear comparative advantage in food and agriculture with proven drivers of success. As a result, Western Australia produces a wide range of foods and has a good spread of agrifood sectors making products across numerous categories and sub-categories.

However, Western Australia is not yet positioned for success in Foods for Health (FFH). Success in FFH looks like a complete industry ecology with firms of all sizes, occupying all available market niches. Beyond the farmgate and primary processing, Western Australia lacks some of the requirements for success in Foods for Health.

Western Australia is currently in the early stage of the process of developing a FFH industry. Many of the product and packaging forms required to deliver functional products are not available locally in the State at scale.

Foods for Health inputs available to Western Australia vary in

terms of the time required to "bring them online". Oats provide a clear example of a category where Western Australia has world class capabilities that appears ripe for an expansion into Foods for Health. Western Australia needs a plan to develop the missing pieces as the industry evolves.

HOW DID YOU FIND FFH OPPORTUNITIES?

The project used two discrete stages of work to identify priority opportunities for "Foods for Health" products from Western Australia. First, a wide range of information and insights were consulted and reviewed to generate a pool of over eighty Foods For Health product concepts suited to Western Australia. These were then fed into Stage I of the process.

Stage I first outlined a "straw man" product concept to summarise the idea and "get everyone on the same page". Stage I then details the characteristics of the product, along with a qualitative scorecard ranking products against the capabilities of Western Australia. Products were ranked qualitatively to give an overall score for "Fit with WA".

The project then answered the question: "How do we turn this list of products into actual businesses?" The opportunity products were evaluated and sorted into seven broad business opportunities, organised into logical clusters of related products where Western Australia can win. The seven groupings collect products with the same or similar production, processing and channels to market.

WHAT BUSINESS OPPORTUNITIES EMERGED?

The broad business opportunities for Western Australia in Foods For Health identified are:

1. Health Focused Dairy/Alternative Dairy

2. Oat Extracts
3. Plant Proteins
4. Medical/Health Focused Ready Meals
5. Botanical Waste Streams
6. Meat Extracts
7. Bushcrop Extracts

All seven of these business opportunities represents sectors and segments of Foods For Health where Western Australia is well positioned to win. All make extensive use of raw materials already being produced in Western Australia. All leverage Western Australian comparative advantage in the wider agrifood space.

In addition to these seven large "platform scale" opportunities, an interesting mix of other opportunities also emerged and are profiled.

In all cases, Western Australia already has many, if not most, of the "pieces of the puzzle" needed to make these opportunity happen. In some cases the opportunity is already in the very early stages of emerging and developing. What is needed now is a clear focus on developing a solid path forward. Foods For Health is a high growth/high margin industry. These "solid paths" will attract investment.

Reports can't make economic development happen. The success or failure of Foods For Health in Western Australia will be driven by passionate individuals seeking to make a difference. The authors of this report are available anytime to discuss any opportunity with anyone looking to make a difference.

ELEVATOR TEST: Western Australia can develop a strong Foods For Health sector by working collaboratively to develop specific opportunities

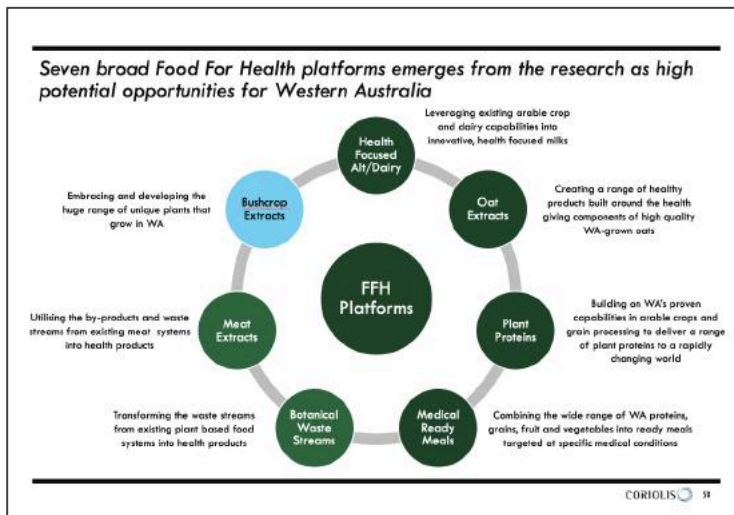
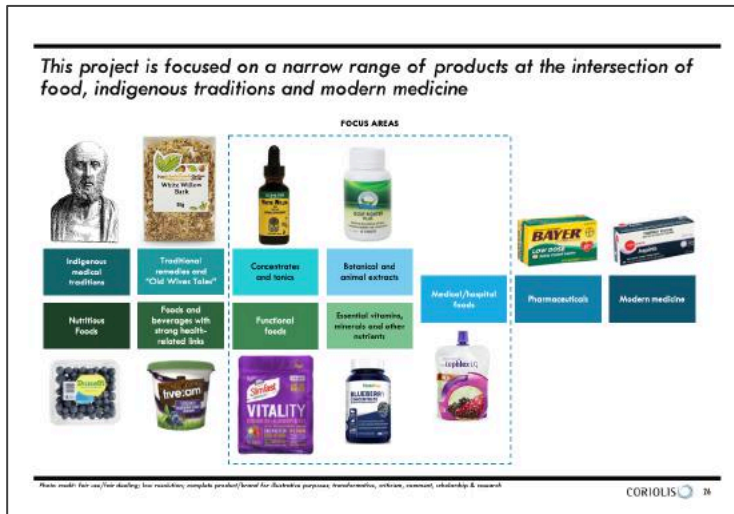
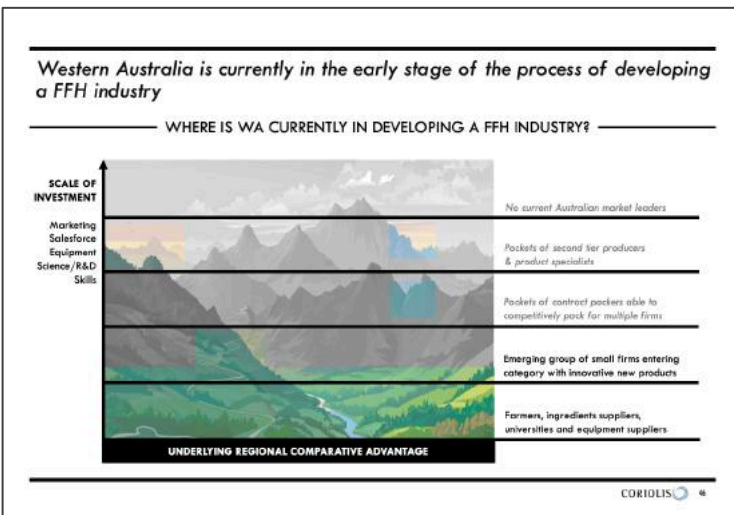
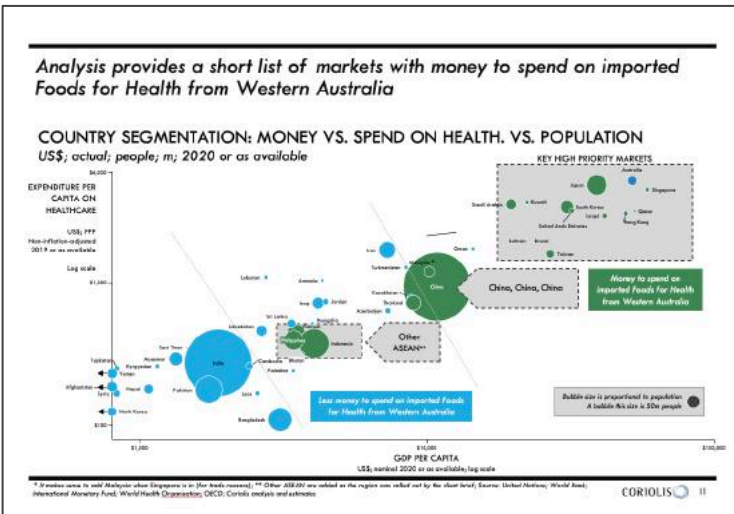


TABLE OF CONTENTS

page 7	page 17	page 54	page 75	page 105	page 133
Context, Markets and Process	Conditions, Concepts and Challenges	Health Focused Dairy/Alternative Dairy	Oat Extracts	Plant Proteins	Medical/Health Focused Ready Meals
page 161	page 205	page 233	page 262	page 337	
Botanical Waste Streams	Meat Extracts	Bushcrop Extracts	Other Opportunities	Appendix I Markets & Conditions Details	

This project aims to “assist Western Australian manufacturers to appreciate and target export market opportunities in food and beverage products that make a contribution to human health and animal health over and above their contribution to basic nutrition”.

CURRENT SITUATION

WA growers, packers, handlers and processors are primarily focused on...

Land Intensive
Bulk Commodities
Highly Competitive
Ingredients

Weak Brands or Unbranded
Limited/Low/No Value Added
Potentially Contributing to Poor Health
Limited Market Insights
Low Margins

SUPPORTED
BY THIS
PROJECT

DESIRED FUTURE

WA growers, packers, handlers and processors are primarily focused on...

Knowledge Intensive
Packaged Products
Differentiated
Shelf Ready
Strong Brands
Highly Value Added
Supporting Positive Health Outcomes
Unique Market Insights
High Margins

By design, this project is focused on the domestic Australian market and attractive markets in Asia and the Middle East

MAP OF ASIA



The USA, Australia, Japan and Hong Kong stand out as the most attractive markets for Western Australian Foods for Health

	OVERALL SCORE	Size of population	Total GDP ¹	GDP / Cap	Pop 65+	Death Rate	% Obese	Doctors	Beds	Pharmacists	Healthcare Spend	HC ² /cap	HC % of GDP	Imports Food	Imports Beverages	Imports Pharma	Imports VMS ³
USA	31	●	●	●	●	●	●	●	◐	●	●	●	●	●	●	●	●
Australia	29	◐	●	●	●	◐	◐	●	●	●	●	●	●	●	●	●	●
Japan	29	●	●	●	●	●	○	◐	●	●	●	●	●	●	●	●	●
South Korea	24	◐	●	◐	●	◐	○	◐	●	◐	●	◐	●	●	●	●	●
Hong Kong	24	○	○	●	●	●	●	◐	●	◐	◐	●	◐	●	●	●	●
China	21	●	●	○	◐	●	○	◐	●	○	●	○	◐	●	●	●	●
Saudi Arabia	18	◐	◐	◐	○	○	●	●	◐	●	●	◐	◐	◐	◐	◐	◐
Taiwan	17	◐	◐	◐	●	●	◐	○	●	○	◐	◐	◐	◐	◐	◐	◐
Israel	15	○	◐	●	◐	○	◐	●	◐	●	◐	●	●	○	○	○	○
New Zealand	13	○	○	◐	◐	◐	●	●	◐	◐	○	●	●	○	○	○	○
UAE	12	○	◐	◐	○	○	●	◐	○	●	○	◐	○	◐	◐	◐	◐
Indonesia	12	●	●	○	◐	◐	◐	○	○	○	◐	○	○	◐	◐	◐	◐
Vietnam	10	●	○	○	○	◐	○	○	◐	○	◐	○	◐	◐	◐	◐	◐
Philippines	4	●	◐	○	○	◐	○	○	○	○	○	○	○	○	○	○	○
Kuwait	8	○	○	◐	○	○	●	●	○	◐	○	◐	◐	○	○	○	○
Thailand	8	◐	◐	○	◐	●	◐	○	○	◐	◐	○	○	○	○	○	○
Singapore	7	○	○	●	◐	○	○	◐	◐	◐	○	◐	○	○	○	○	○
Malaysia	6	◐	○	○	○	○	◐	○	○	○	○	○	○	◐	◐	◐	◐

1. GDP = Gross Domestic Product; 2. HC= Healthcare; 3. VMS = Vitamins, Minerals and Supplements

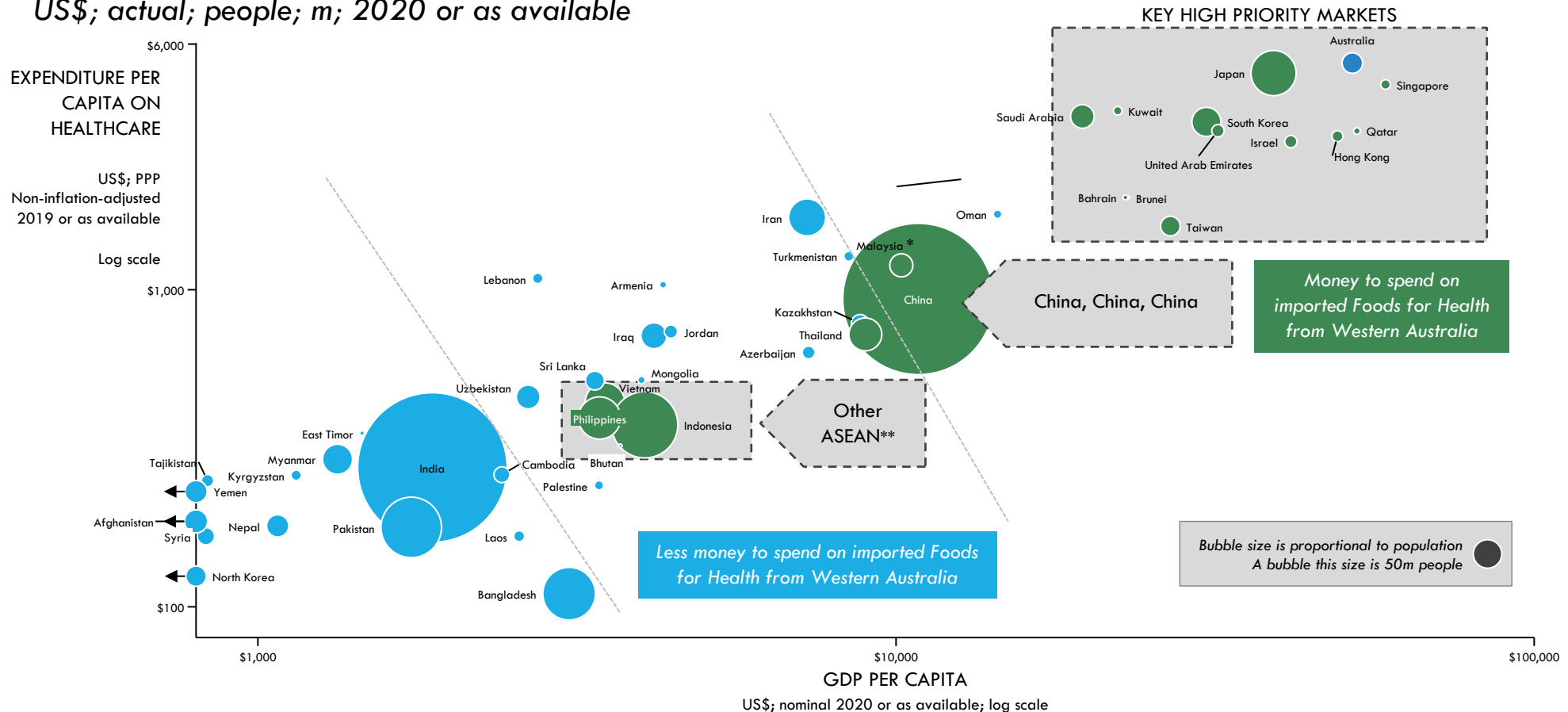
ATTRACTIVENESS

LOW	MEDIUM	HIGH
○	◐	●

Analysis provides a short list of markets with money to spend on imported Foods for Health from Western Australia

COUNTRY SEGMENTATION: MONEY VS. SPEND ON HEALTH. VS. POPULATION

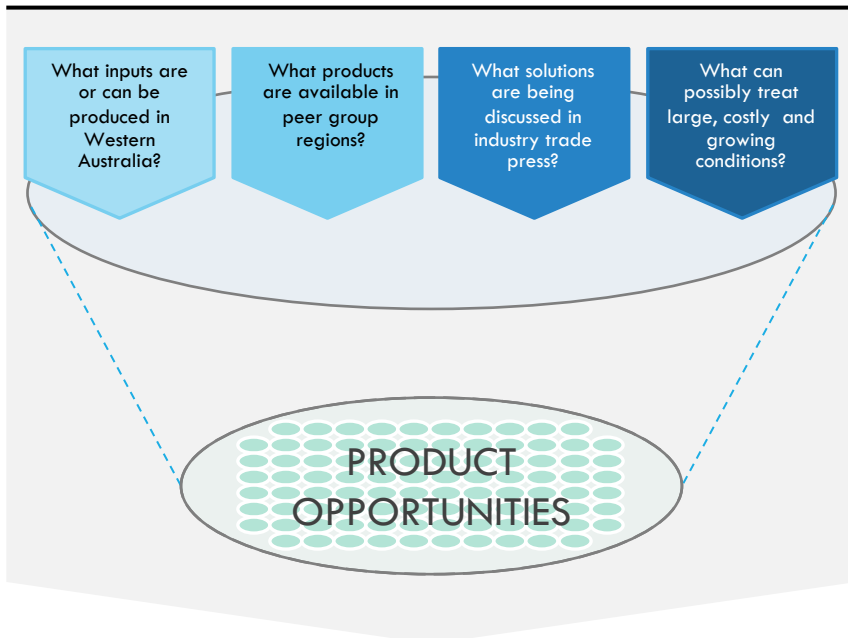
US\$; actual; people; m; 2020 or as available



* It makes sense to add Malaysia when Singapore is in (for trade reasons); ** Other ASEAN are added as the region was called out by the client brief; Source: United Nations; World Bank; International Monetary Fund; World Health Organisation; OECD; Coriolis analysis and estimates

The project used two discrete stages of work to identify priority opportunities for “Foods for Health” products from Western Australia

STAGE I: PRODUCT OPPORTUNITIES

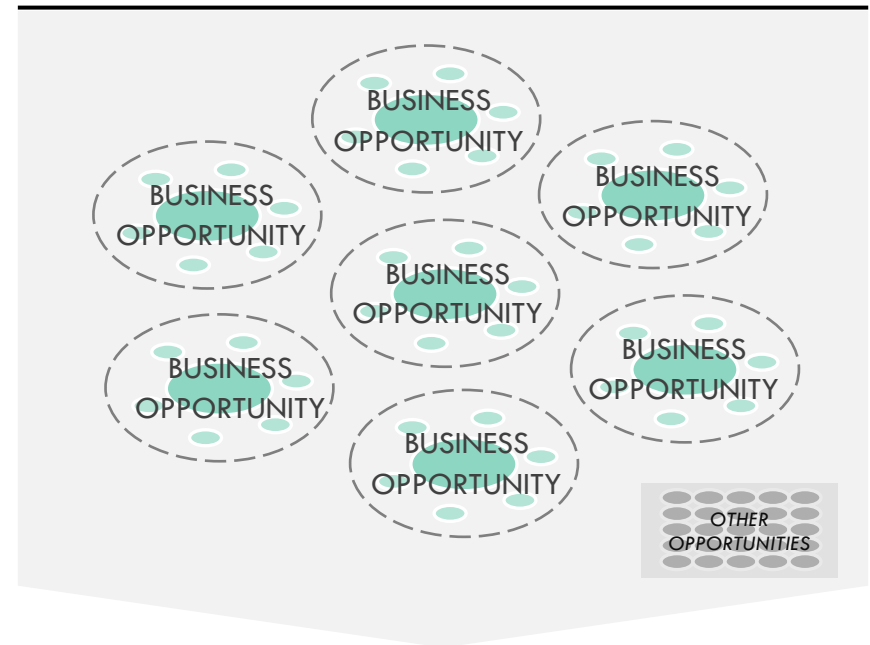


SCREEN I – Identification & Profiling Potential Products

Identify, profile and evaluate potential opportunities for Western Australian Foods For Health at the specific product level

- Leverage all past supporting research
- Present opportunity summary and assessment
- Develop criteria based methodology for screen
- Develop fair, neutral evaluation against common criteria
- Target high value, high growth opportunities

STAGE II: BUSINESS OPPORTUNITIES



SCREEN II – Clustering into Related Business Opportunities

How do we turn this list of products into actual businesses?

- Organise products that emerged in Stage I into logical clusters of related products where WA can win
- Same/similar production, processing and channels to market
- Develop each of the emergent key business opportunities into a clearer, concept and evaluation

Stage 1 first outlines a “straw man” product concept to summarise the idea and “get everyone on the same page”

HIGH FIBRE INSTANT DRINK WITH LIVE BACTERIA

1

WHAT IS THE CONCEPT?

High fibre instant drink powder with live bacteria targeting constipation and gut health

2

GIVE ME THE ELEVATOR PITCH

Constipation, digestive issues and gut health issues are growing challenge for consumers in Australia and Asia. WA has the skills and capabilities required across the value chain to deliver a compelling product in this space.

3

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?	\$10-15/100g \$100-150/kg
WHAT SORT OF PACK SIZE?	150g, 200g, 500g
WHAT PRODUCT FORM?	Dry Powder
WHAT FORM OF PACKAGING?	Plastic, tamper evident seal or cardboard/paper seal
WHAT MARGINS WILL THE RETAILER TAKE?	40-50% of retail selling price
WHAT SORT OF PROFITABILITY?	EBITDA \$1.50/unit @10% of retail price

4

WHAT ARE THE KEY CHANNELS?

Supermarkets	✓✓
Pharmacy/Chemist	✓✓✓✓
Online	✓✓
Direct sales	-
Duty Free	-
Dairym	-

5

WHO IS THE COMPETITOR?

Proctor & Gamble
Smaller, regional firms

6

WHAT ARE THE POTENTIAL INGREDIENTS?

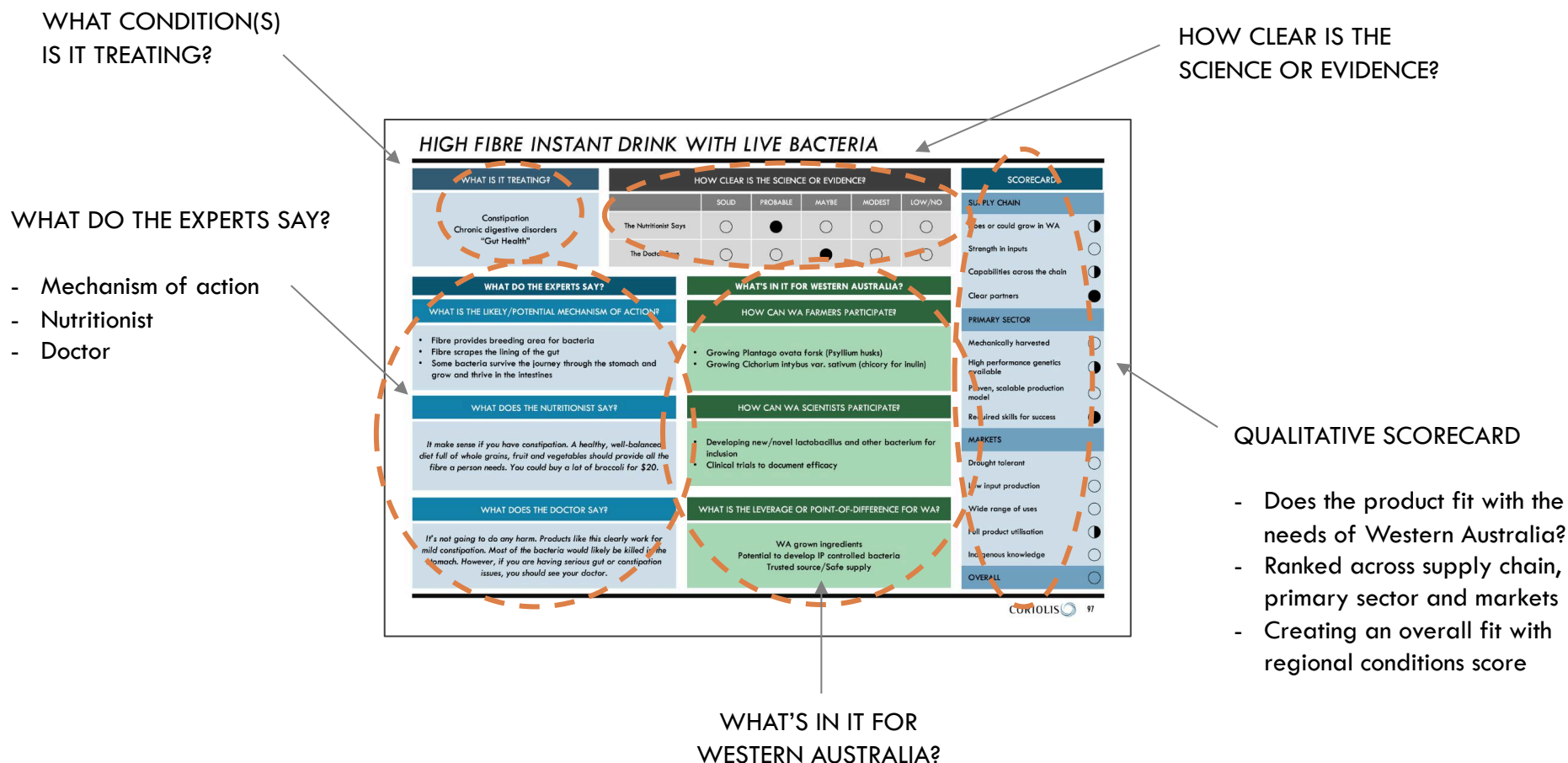
Psyllium husks (Plantago ovata forsk), Inulin (from Chicory Cichorium intybus), Lactobacillus rhamnosus, Bifidobacterium bifidum, Lactobacillus acidophilus, Lactobacillus plantarum, Lactobacillus bulgaricus, natural sweeteners (?), natural flavours

7

WHAT COULD IT LOOK LIKE?

- 1 Concept summary
- 2 Elevator pitch
- 3 Potential “straw man” product metrics
- 4 Key sales channels to market
- 5 Key competitors in the wider space
- 6 Potential “straw man” ingredients
- 7 Example products that are similar in some way

Stage 1 details the characteristics of the product along with a qualitative scorecard ranking products against the capabilities of Western Australia



Products were ranked qualitatively to give an overall score for “Fit with WA”

Identified characteristics that act as markers for potential success		<div> <input type="radio"/> LOW <input checked="" type="radio"/> MEDIUM <input type="radio"/> HIGH </div>			
- Is one or more of the key ingredients already produced in Western Australia at any scale?	Does or could grow in WA				
- Does WA have proven capabilities in one or more of the key inputs to the value chain?	Strength in inputs				
- Does WA have the required capabilities to deliver across the total supply/value chain?	Capabilities across the chain				
- Is there a multi-stage value chain with clear steps and opportunities?	Clear partners				
- Is there a clear, logical group of likely partners capable of taking the opportunity forward?	Mechanically harvested				
- Can the product be harvested by “one man and a big machine”?	High performance genetics available				
- Are the right varieties already in the country?	Proven, scalable production model				
- Has there been investment in breeding/genetics for commercial production?	Required skills for success				
- Do robust, well-developed mechanical harvesting systems exist?	Drought tolerant				
- Are the production systems and technologies available in Australia?	Low input production				
- Alternatively can new entrants leverage similar production systems where WA has strength?	Wide range of uses				
- Does the product thrive in a hot, dry climate?	Full products utilisation				
- If the irrigation broke for, say, a week, would the product die under WA conditions?	Indigenous knowledge				
- Are there multiple, complementary uses for key ingredients?					
- Does to product assist in utilising all parts of key ingredients?					
- Has the product been used by traditional owners for this or a related use?					

SCORECARD	
SUPPLY CHAIN	
Does or could grow in WA	<input checked="" type="radio"/>
Strength in inputs	<input type="radio"/>
Capabilities across the chain	<input checked="" type="radio"/>
Clear partners	<input checked="" type="radio"/>
PRIMARY SECTOR	
Mechanically harvested	<input type="radio"/>
High performance genetics available	<input checked="" type="radio"/>
Proven, scalable production model	<input type="radio"/>
Required skills for success	<input checked="" type="radio"/>
MARKETS	
Drought tolerant	<input type="radio"/>
Low input production	<input type="radio"/>
Wide range of uses	<input type="radio"/>
Full product utilisation	<input checked="" type="radio"/>
Indigenous knowledge	<input type="radio"/>
OVERALL	<input type="radio"/>

Stage II profiles each emergent business opportunity by answering a set of common questions

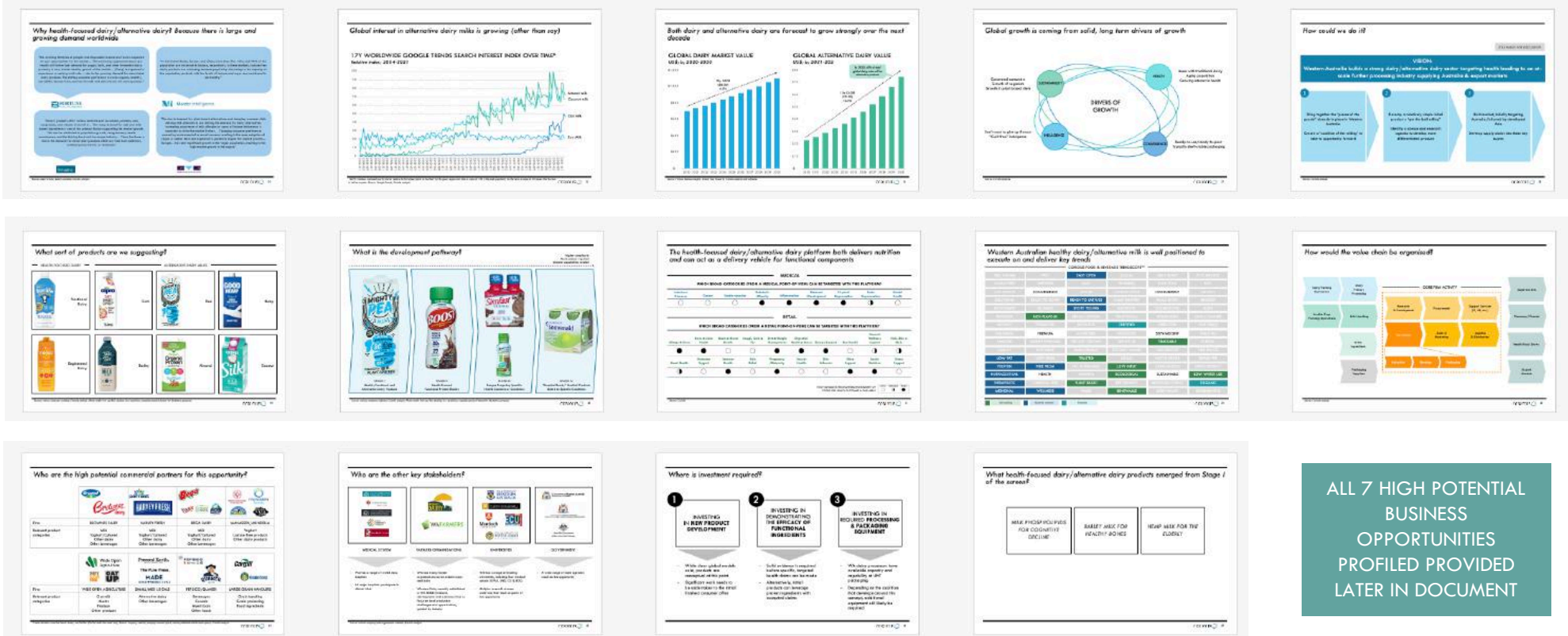


TABLE OF CONTENTS

page 7	page 17	page 54	page 75	page 105	page 133
Context, Markets and Process	Conditions, Concepts and Challenges	Health Focused Dairy/Alternative Dairy	Oat Extracts	Plant Proteins	Medical/Health Focused Ready Meals
page 161	page 205	page 233	page 262	page 337	
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CONCEPTS SUMMARY: *Foods for Health are foods that attempt to support disease avoidance, management and treatment*

WHAT CONDITIONS ARE TREATABLE WITH FOODS?

- The human body is a complex web of systems assembled over billions of years of evolution; with this complexity, a lot can go wrong and there is a lot we do not understand
- We have simplified the complexity of the bodies issues down into ten major categories of “disease conditions”
- These disease conditions vary in their suitability to avoidance, management and treatment through food based products
- As a general rule, food based products are best suited to disease avoidance
- As an example of how food can help, epileptic fits (a brain disorder) can be effectively treated through strict adherence to a ketogenic diet

WHAT ARE FOOD FOR HEALTH?

- This project is focused on a narrow range of products at the intersection of food, indigenous traditions and modern medicine and clear definitions are used consistently throughout the project
- By definition, the project deals with products that are classified as food rather than medicine; it targets products with scientific support

- Pharmaceutical drugs and alternative medicines treat the same things, but only one can potentially be put in food (or other products)

In an ideal world, we would have clear treatments for clear conditions; unfortunately reality on the ground in many categories is more complicated








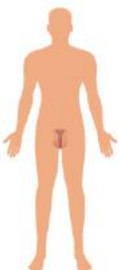
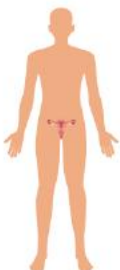
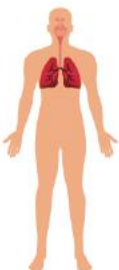
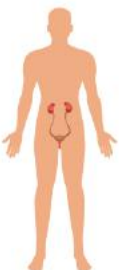

- There are no simple causes or easy solutions to most major issues
- In practice, foods can have an impact on multiple conditions; for example, green tea consumption has a wide range of beneficial effects
- At the same time, multiple food-derived substances can have beneficial effects on specific conditions
- Therefore, unlike pharmaceuticals, many foods for health products are formulated using a mixture of active ingredients

The best opportunities for success in Foods for Health exist at the intersection of the rational/scientific and limbic/emotion driven worldviews

As a result of all this complexity, how doctors see the world is not the same as how retailers typically organise their “Foods for Health” range

The human body is a complex web of systems assembled over billions of years of evolution; a lot can, and does go wrong

MAJOR SYSTEMS OF THE HUMAN BODY

											
Digestive System	Muscular System	Integumentary System	Lymphatic System	Endocrine System	Nervous System	Skeletal system	Male Reproductive System	Female Reproductive System	Respiratory system	Urinary System	Circulatory system
<ul style="list-style-type: none"> Oral cavity Salivary glands Tongue Pharynx Esophagus Stomach Liver Gallbladder Pancreas Duodenum Transverse colon Small intestine Rectum Anus 	<ul style="list-style-type: none"> Major groupings Head Neck Torso <ul style="list-style-type: none"> • Back • Chest • Pelvis • Perineum Upper limbs • Vertebral column • Thoracic walls • Shoulder <ul style="list-style-type: none"> • Arm • Forearm • Hand Lower limb <ul style="list-style-type: none"> • Iliac region • Gluteal • Thigh • Leg • Foot <p>650 named muscles</p>	<ul style="list-style-type: none"> Skin (dermis, hypodermis) Hair Nails 	<ul style="list-style-type: none"> Lymph Lymphatic vessels Lymph nodes Lymphatic organs Lymphoid tissue 	<ul style="list-style-type: none"> Hypothalamus Pituitary gland Pineal gland Thyroid gland Parathyroid gland Thymus Pancreas Adrenal glands Ovary (females) Placenta (females) Testes (male) 	<ul style="list-style-type: none"> Brain Spinal cord Nerves Glial cells Somatic Autonomic <ul style="list-style-type: none"> - Sympathetic - Parasympathetic Enteric 	<ul style="list-style-type: none"> Skull Mandible Cervical vertebrae Thoracic vertebrae Lumbar vertebrae Sternum Ribs Humerus Radius Ulna Carpals Metacarpals Phalanges Pelvis Sacrum Coccyx Femur Patella Tibia Fibula Tarsals Metatarsals Phalanges <p>Around 206 bones in adults</p>	<ul style="list-style-type: none"> Testes 	<ul style="list-style-type: none"> Placenta Ovaries Uterus Cervix 	<ul style="list-style-type: none"> Nose Nasal cavity Mouth Throat Epiglottis Larynx Trachea Pleural membranes Lungs Bronchi Alveoli 	<ul style="list-style-type: none"> Kidneys Ureter Bladder Urethra 	<ul style="list-style-type: none"> Heart Blood vessels (veins, arteries) Aorta Pulmonary artery Hepatic vein

INDICATIVE
Not a complete list

We have simplified the complexity of the bodies issues down into ten major categories of “disease conditions”

CONDITIONS TREATABLE WITH FOOD BASED PRODUCTS

NON-COMMUNICABLE DISEASES

CANCER

- Ordered by prevalence
- Lung cancer (18.6%)
 - Colorectal cancer (11.1%)
 - Breast cancer (8.5%)
 - Prostate cancer (5.9%)
 - Pancreatic cancer (5.3%)
 - Numerous others

METABOLIC/ OBESITY

- Diabetes (type 2)
- Polycystic ovary syndrome
- Hypertension
- Chronic kidney disease
- Numerous others

CARDIOVASCULAR

- Coronary artery diseases
- Stroke
- Heart failure
- Rheumatic heart disease
- Arteriosclerosis
- Numerous others

INFLAMMATION

- Rheumatoid arthritis
- Gout
- Irritable bowel syndrome
- Diabetes (type 1)
- Numerous others

DEGENERATION

- Osteoarthritis
- Osteoporosis
- Cataracts
- Others

NON-COMMUNICABLE DISEASES

MUSCULAR/ SKELETAL

- Back pain
- Recovery from injury
- Others

MATERNAL/ DEVELOPMENTAL

- Mother during pregnancy
- Child during pregnancy
- Child at and after birth (e.g. sudden infant death syndrome)
- Nutritional deficiencies

BRAIN

- Dementia
- Alzheimer's
- Parkinson's
- Epilepsy
- Numerous others

MENTAL HEALTH

- Suicide
- Drug & alcohol abuse
- Mood affective disorders

COMMUNICABLE DISEASES

INFECTIOUS DISEASES

- "Common cold"
- "Flu" (Influenza)
- Chlamydia, HIV, other STD
- Food-borne illness
- Numerous others

These disease conditions vary in their suitability to avoidance, management and treatment through food based products

AVOIDANCE/MANAGEMENT/TREATMENT?

	AVOIDANCE <i>Don't develop the condition in the first place</i>	MANAGEMENT <i>Minimising the on-going effects of the condition</i>	TREATMENT <i>Minimising or eliminating the condition itself</i>
CANCER	●	○	○
METABOLIC/OBESITY	●	●	●
CARDIOVASCULAR	●	●	●
INFLAMMATION	●	●	●
DEGENERATION	◐	◐	○
MUSCULAR/SKELETAL	○	◐	○
MATERNAL/DEVELOPMENTAL	●	○	○
BRAIN	◐	◐	○
MENTAL HEALTH	◐	◐	○
INFECTIOUS DISEASES	●	◐	○

KNOWN & UNDERSTOOD SIMPLIFICATION OF A COMPLEX REALITY

FOOD
SUITABILITY

LOW
○

MEDIUM
◐

HIGH
●

CORIOLIS

As a general rule, food based products are best suited to disease avoidance

AVOIDANCE/MANAGEMENT/TREATMENT?

	AVOIDANCE <i>Don't develop the condition in the first place</i>	MANAGEMENT <i>Minimising the on-going effects of the condition</i>	TREATMENT <i>Minimising or eliminating the condition itself</i>
CANCER	●	○	○
METABOLIC/OBESITY	●		
CARDIOVASCULAR	●		
INFLAMATION	●		
DEGENERATION	◐		
MUSCULAR/SKELETAL	○		
MATERNAL/DEVELOPMENTAL	●	○	○
BRAIN	◐	◐	○
MENTAL HEALTH	◐	◐	○
INFECTIOUS DISEASES	●	◐	○

As they say: "It is hard to disprove a negative". Who is to say why someone didn't develop cancer? This is why many foods for health products focus on general "wellness" and similar claims. This is also in line with Traditional Chinese medicine and other quasi-scientific health systems

KNOWN & UNDERSTOOD SIMPLIFICATION OF A COMPLEX REALITY

FOOD
SUITABILITY

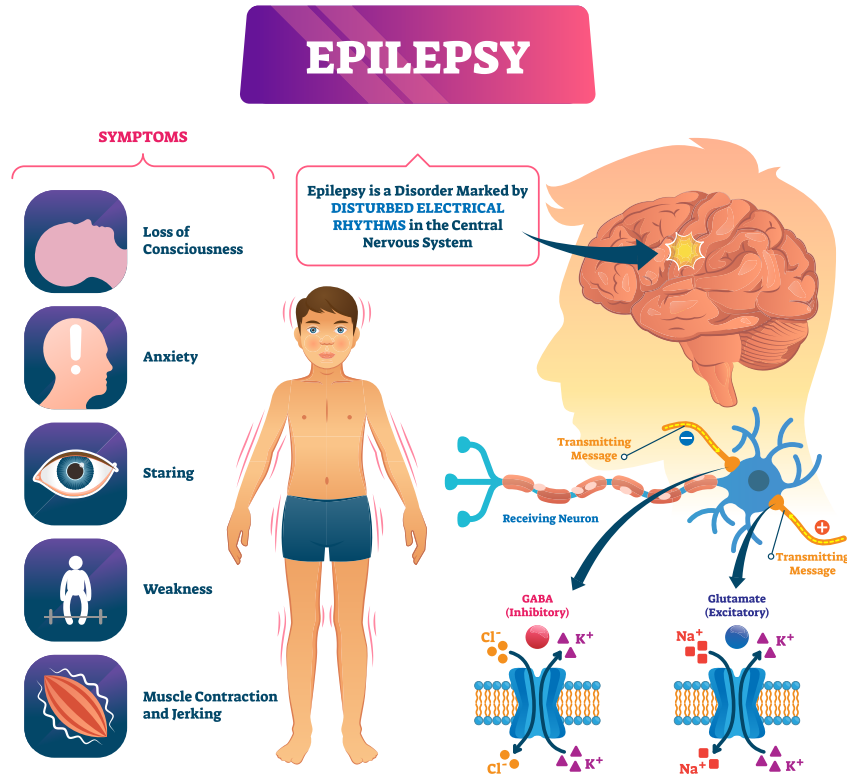
LOW
○

MEDIUM
◐

HIGH
●

CORIOLIS

As an example of how food can help, epilepsy (a brain disorder) can be effectively treated through strict adherence to a ketogenic diet



“One of the oldest treatments for epilepsy is the classic ketogenic diet, which involves consuming high-fat foods and very few carbohydrates. Johns Hopkins is a longstanding pioneer in this mode of therapy. In order to be successful, this therapy calls for strict compliance and plenty of patience, especially in the beginning. Most important, patients with epilepsy should only use the diet with the support of a knowledgeable ketogenic diet team, including a doctor and a licensed dietitian who can correctly calculate and monitor the diet for each individual.”

As another example, Benecol products act to lower cholesterol to reduce risks of heart attack or stroke



As another example, Danone's Souvenaid is a medical nutrition drink that supports memory function in the early stages of Alzheimer's disease



Ingredients[^]

Souvenaid Strawberry: Water, maltodextrin, sugar, fish oil, milk proteins, flavouring (strawberry), uridine 5'- monophosphate disodium salt, choline chloride, acidity regulator (citric acid), stabilisers (microcrystalline cellulose and sodium carboxymethylcellulose), potassium citrate, soy lecithin, calcium hydroxide, sodium L-ascorbate, DL- α -tocopheryl acetate, colour (carminic acid), magnesium hydroxide, potassium hydroxide, sodium chloride, sodium selenite, ferrous lactate, sodium citrate, pteroylmonoglutamic acid, cyanocobalamin, zinc sulphate, retinyl acetate, nicotinamide, pyridoxine hydrochloride, copper gluconate, manganese sulphate, chromium chloride, calcium D-pantothenate, D-biotin, cholecalciferol, thiamin hydrochloride, sodium molybdate, riboflavin, potassium iodide, phytomenadione.

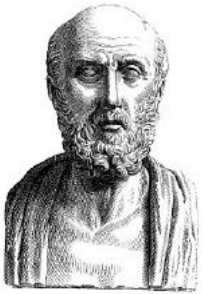
[^]Please note the ingredients list is for Strawberry flavour only. There are minor variations in ingredients list between different flavours. For the full ingredients list of the Vanilla and Cappuccino flavours, please contact the Nutricia Clinical Care Line on 1800 060 051.

^{*}DHA: docosahexaenoic acid, EPA: eicosapentaenoic acid (DHA & EPA are omega-3 polyunsaturated fatty acids)

^{*}UMP: uridine monophosphate

This project is focused on a narrow range of products at the intersection of food, indigenous traditions and modern medicine

FOCUS AREAS



Indigenous
medical
traditions



Traditional
remedies and
"Old Wives Tales"



Concentrates
and tonics



Botanical and
animal extracts



Pharmaceuticals



Modern medicine

Medical/hospital
foods

Nutritious
Foods



Foods and
beverages with
strong health-
related links



Functional
foods

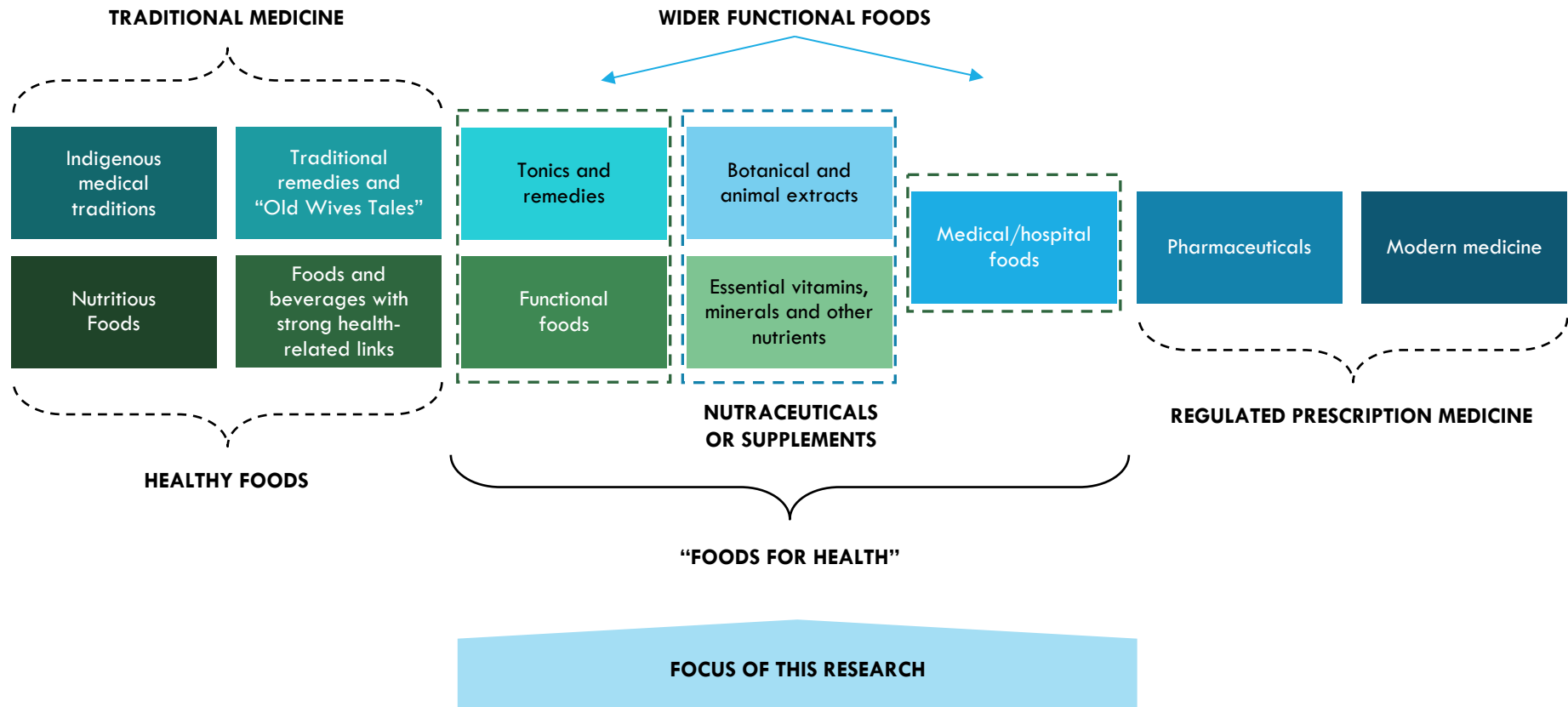


Essential vitamins,
minerals and other
nutrients



This project defined “foods for health” as (1) nutraceuticals and (2) the wider functional foods space

SCOPE & MARKET DEFINITION FOR HEALTH-RELATED PRODUCTS*



* Focusing primarily on orally ingested products; creams, lotions, cosmetics, toiletries and similar are defined as out of scope; Source: Coriolis

Clear definitions are used consistently throughout the project

DEFINITIONS FOR HEALTH-RELATED PRODUCTS

		CATEGORY	DEFINITION	GENERAL EXAMPLES
"FOODS FOR HEALTH"	FOODS, TONICS & REMEDIES	Nutritious foods	- Conventional food from natural sources containing essential nutritional elements	- Apples - Grass-fed beef
		Traditional remedies and foods with strong health-related links	- Conventional foods strongly associated with specific health claims	- Ocean Spray cranberry juice and urinary tract infections - Manuka honey and colds
		Functional foods, tonics and remedies	- Foods and beverages formulated to provide health benefits beyond conventional recipes - Conventional foods to which high concentration nutraceuticals have been added/fortified to give health benefits	- Yakult probiotic drinking yoghurt - ResVes WineTime chocolate bar with Resveratrol
	NUTRACEUTICALS OR SUPPLEMENTS	Botanical and animal extracts	- Plant and animal extracts being used for health - Purified and concentrated	- Healthy Care flaxseed oil - Natures Bounty Gingko Biloba
		Essential vitamins, minerals and other nutrients	- Nutrient required for normal body functioning that cannot be synthesised by the body (at all or in adequate quantities) - Isolated compounds presented in concentrated form (individually or combined)	- Ostelin Vitamin D3 - GNC Alpha Lipoic Acid - Blackmores Glucosamine
	FUNCTIONAL FOODS	Medi-Foods	- Food or food derivatives that have been through some level of clinical trials or are exclusively used medically	- Novartis Fibersource HN™ to dispense via an IV drip
		Pharmaceuticals	- Patented chemical substance intended for use in medical treatment which have been through clinical trials and are government approved	- AbbVie Humira treatment for used to treat rheumatoid arthritis, psoriatic arthritis, ankylosing spondylitis, Crohn's disease, ulcerative colitis, psoriasis, hidradenitis suppurativa, uveitis, and juvenile idiopathic arthritis (US\$20b sales)

“Foods For Health” [the conceptual umbrella] are turned into products that are typically called “functional foods” or “nutraceuticals” [the industry terms]

“Functional foods can be considered to be those whole, fortified, enriched or enhanced foods that provide health benefits beyond the provision of essential nutrients (e.g., vitamins and minerals), when they are consumed at efficacious levels as part of a varied diet on a regular basis.

Linking the consumption of functional foods or food ingredients with health claims should be based on sound scientific evidence, with the “gold standard” being replicated, randomized, placebo-controlled, intervention trials in human subjects. However, not all foods on the market today that are claimed to be functional foods are supported by enough solid data to merit such claims.”

“Although the terms “nutraceutical” and “functional food” are used commonly around the world, there is no consensus on their meaning. Consequently, the Bureau of Nutritional Sciences, of the Food Directorate of Health Canada, has proposed the following definitions:

A nutraceutical is a product isolated or purified from foods that is generally sold in medicinal forms not usually associated with food. A nutraceutical is demonstrated to have a physiological benefit or provide protection against chronic disease.

A functional food is similar in appearance to, or may be, a conventional food, is consumed as part of a usual diet, and is demonstrated to have physiological benefits and/or reduce the risk of chronic disease beyond basic nutritional functions.”



Public Health
Agency of Canada

Agence de la santé
publique du Canada

“Nutraceuticals” and “vitamins, minerals and supplements” have a clear definition

HOW ARE NUTRACEUTICALS AND VITAMINS, MINERALS & SUPPLEMENTS DEFINED?

“A nutraceutical is a substance that is a food or part of a food that provides medical and/or health benefits, including the prevention and treatment of disease’ or ‘a product produced from foods but sold in powders, pills and other medicinal forms not generally associated with food and demonstrated to have physiological benefits or provide protection against chronic disease.”

Dr. Stephen DeFelice, 1989

“The law defines dietary supplements in part as products taken by mouth that contain a “dietary ingredient.” Dietary ingredients include vitamins, minerals, amino acids, and herbs or botanicals, as well as other substances that can be used to supplement the diet. Dietary supplements come in many forms, including tablets, capsules, powders, energy bars, and liquids.”

United States Food & Drug Administration

“Vitamins are organic nutrients that are essential for life. Our bodies need vitamins to function properly. We cannot produce most vitamins ourselves, at least not in sufficient quantities to meet our needs. Therefore, they have to be obtained through the food we eat... Minerals are divided into two categories: macrominerals and trace minerals/trace elements.

As implied by their name, macrominerals are required by the body in larger quantities (more than 100 mg daily) than trace elements. To meet our requirements for some macrominerals we need to consume sufficient and varied food. The trace minerals are so named because they are present in relatively small amounts in the body. If we were to pool the requirements for trace minerals, they would produce only a bit of dust, hardly enough to fill a teaspoon. Yet they are no less important than the macrominerals or any of the other nutrients. The trace mineral contents of foods depend on soil and water composition and on how foods are processed.”

Vitamins and Minerals, sightandlife

“Functional Foods” or “Foods For Specific Health Uses (FOSHU)” also have a clear definition

HOW ARE FUNCTIONAL FOODS OR FOODS FOR SPECIFIC HEALTH USES (FOSHU) DEFINED? ---

“Functional Foods or Foods For Specific Health Uses (FOSHU) are food products fortified with special constituents that possess advantageous physiological effects.”

Japanese Government, 1984

“Any modified food or food ingredient that may provide a health benefit beyond the traditional nutrients it contains.”

National Academy of Sciences Food and Nutrition Board

“Substances that provide essential nutrients often beyond quantities necessary for normal maintenance, growth, and development, and/or other biologically active components that impart health benefits or desirable physiological effects.”

Institute of Food Technologists (IFT)

“Food products can only be considered functional if together with the basic nutritional impact it has beneficial effects on one or more functions of the human organism thus either improving the general and physical conditions or/and decreasing the risk of the evolution of diseases.”

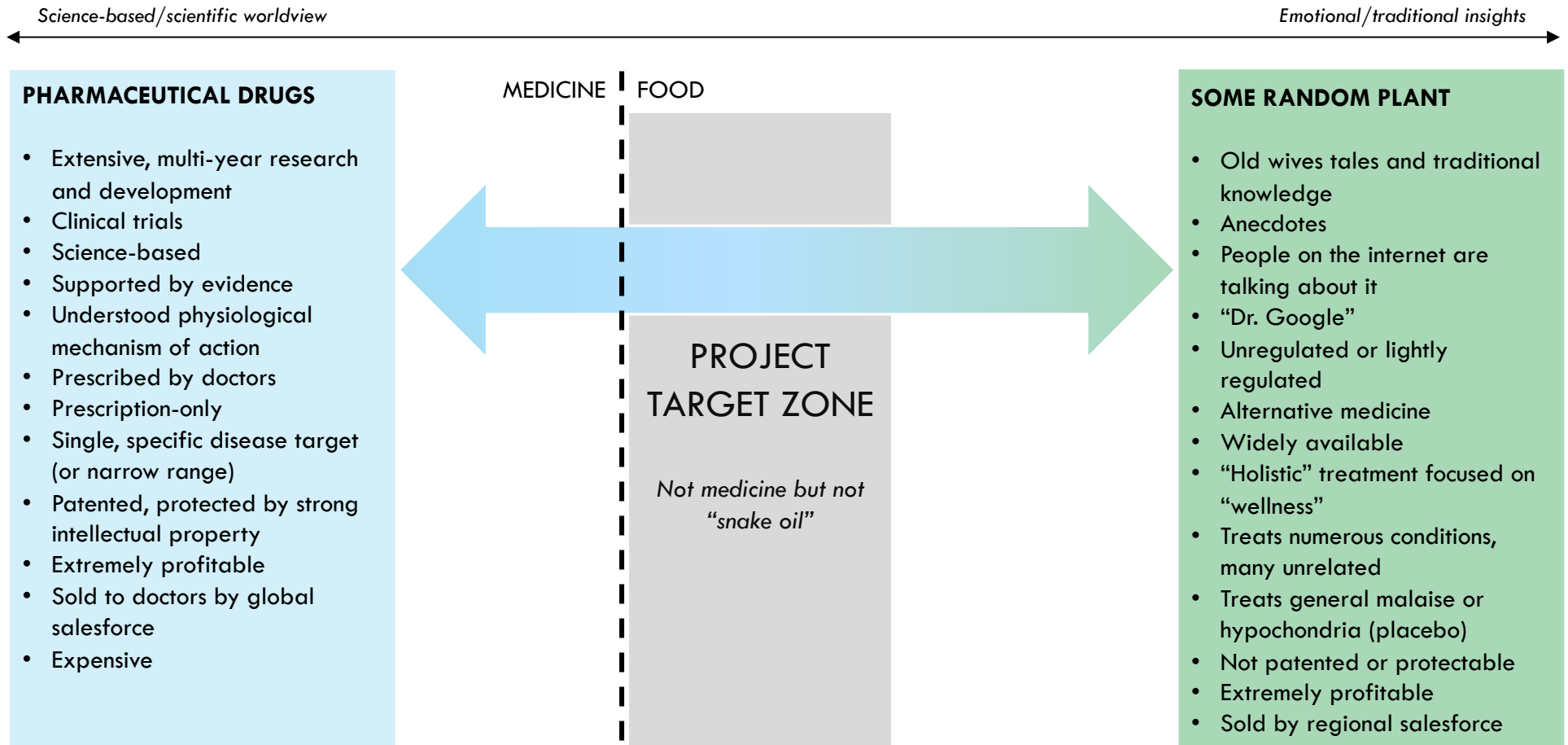
European Commission Concerted Action on Functional Food Science in Europe (FUFOSE)

“Natural or processed foods that contains known or unknown biologically-active compounds; which, in defined, effective non-toxic amounts, provide a clinically proven and documented health benefit for the prevention, management, or treatment of chronic disease.”

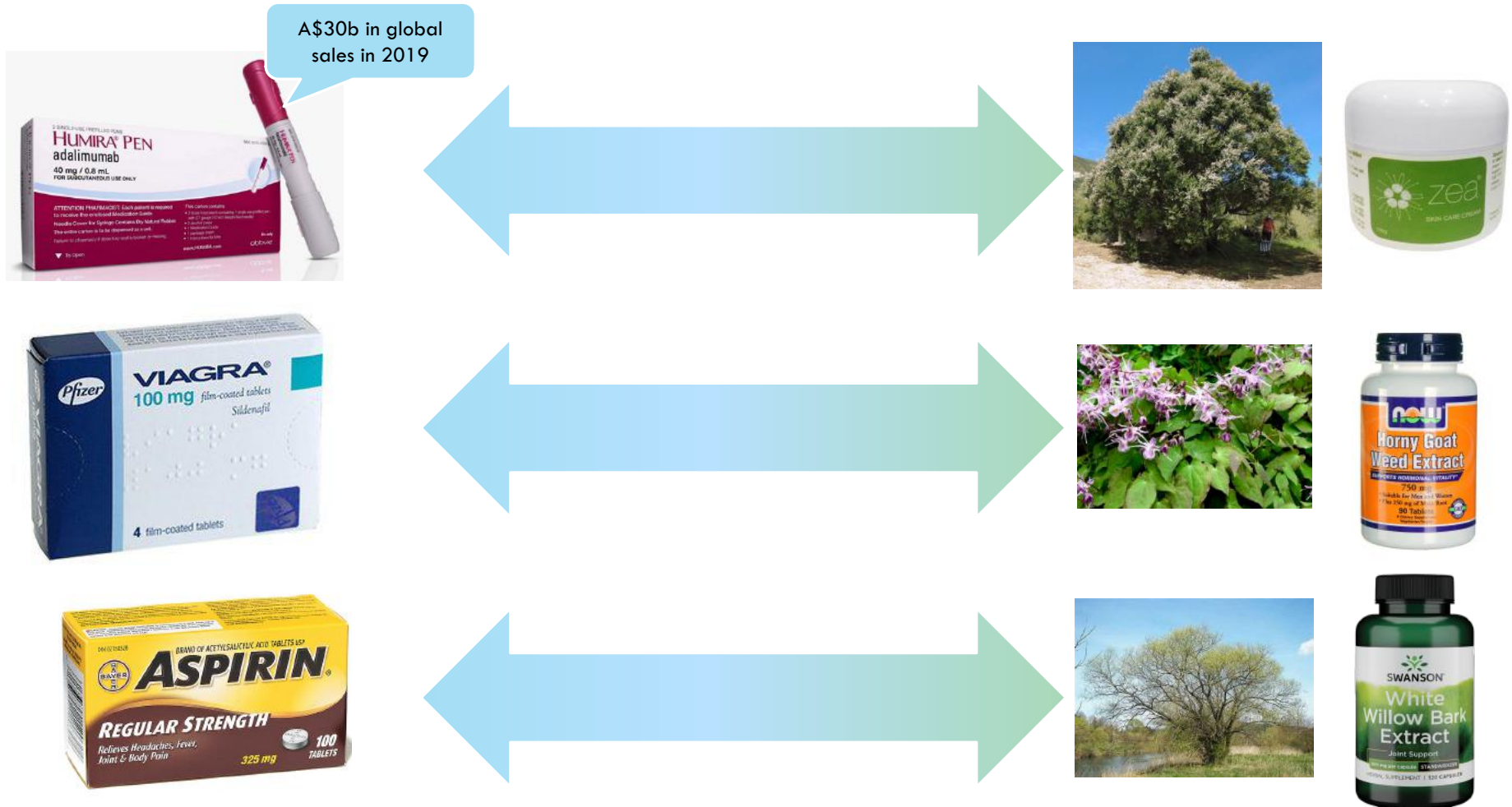
Functional Food Center/Functional Food Institute

Foods for Health products exist in a continuum starting at the edge of medicine and stretching into snake oil

CONDITIONS TREATABLE WITH FOOD BASED PRODUCTS

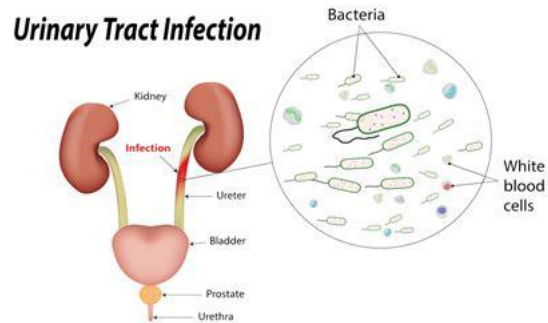


Pharmaceutical drugs and alternative medicines treat the same things, but only one can potentially be put in food (or other products)



*In an ideal world, we would have clear treatments for clear condition;
unfortunately reality on the ground in many categories is more complicated*

AT A SIMPLE LEVEL A PRODUCT COULD
TREAT ONE AILMENT



IN MOST CASES IT SEEMS THE WORLD
ACTUALLY LOOKS LIKE THIS

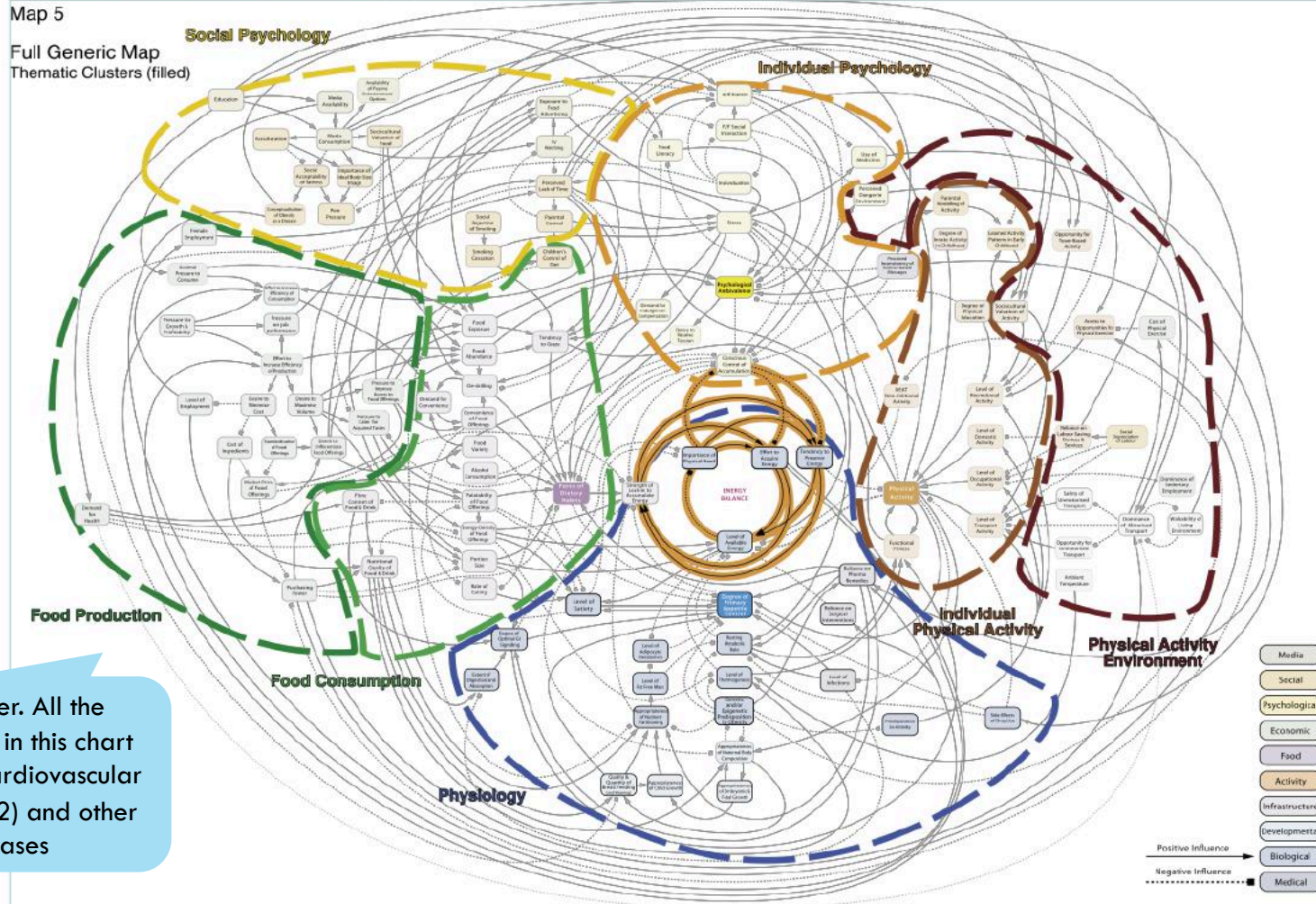
Traditional Medicinal Uses of **MORINGA**



There are no simple causes or easy solutions to most major issues

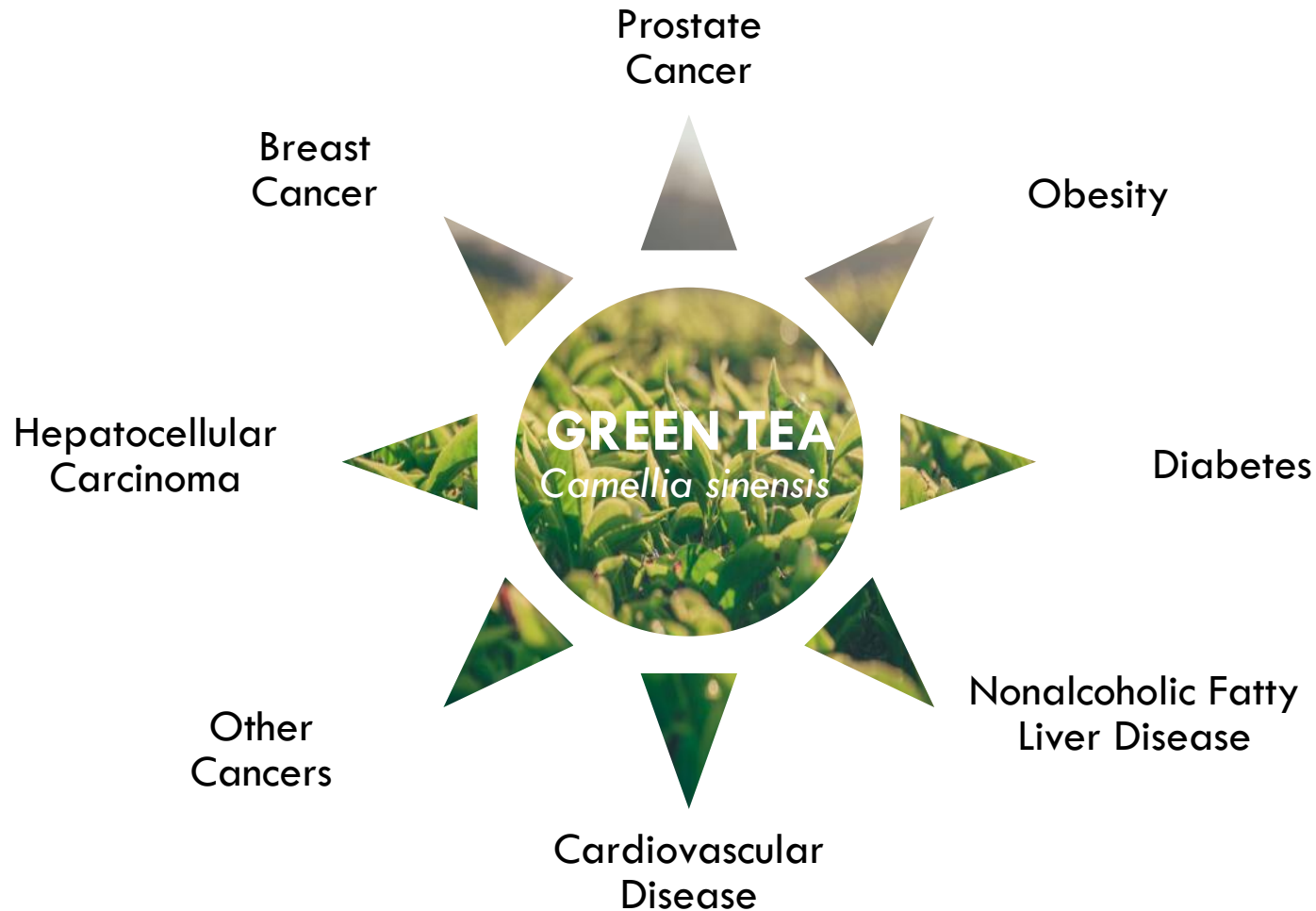
EXAMPLE OBESITY

Figure 5.2: The full obesity system map with thematic clusters (see main text 5.1.2 for discussion)^{17,18} Variables are represented by boxes, positive causal relationships are represented by solid arrows and negative relationships by dotted lines. The central engine is highlighted in orange at the centre of the map.



There is not one answer. All the causes of obesity shown in this chart directly contributes to Cardiovascular disease (#1), Cancer (#2) and other diet related diseases

In practice, foods can have an impact on multiple conditions; for example, green tea consumption has a wide range of beneficial effects



At the same time, multiple food-derived substances can have beneficial effects on specific conditions

EXAMPLES OF NUTRACEUTICALS GROUPED BY MECHANISMS OF ACTION

Anti-cancer	Positive Influence on Blood Lipid Profile	Anti-oxidant Activity	Anti-inflammatory	Osteogenetic or Bone Protective
Capsaicin	β-Glucan	CLA	Linolenic acid EPA	CLA
Genestein	γ-Tocotrienol	Ascorbic acid	DHA	Soy protein
Daidzein	δ-Tocotrienol	β-Carotene Polyphenolics	GLA	Genestein
α-Tocotrienol	MUFA	Tocopherols Tocotrienols	(gamma-linolenic acid)	Daidzein
γ-Tocotrienol	Quercetin	Indole-3-carbonol α-	Capsaicin	Calcium
CLA	ω-3 PUFAs	Tocopherol Ellagic acid	Quercetin Curcumin	Casein phosphopeptides
Lactobacillus acidophilus	Resveratrol	Lycopene		FOS
Sphingolipids	Tannins	Lutein Glutathione		(fructooligosaccharides)
Limonene	β-Sitosterol	Hydroxytyrosol Luteolin		Inulin
Diallyl sulfide	Saponins	Oleuropein Catechins		
Ajoene	Guar	Gingerol Chlorogenic acid		
α-Tocopherol	Pectin	Tannins		
Enterolactone				
Glycyrrhizin				
Equol				
Curcumin				
Ellagic acid				
Lutein				
Carnosol				
Lactobacillus bulgaricus				

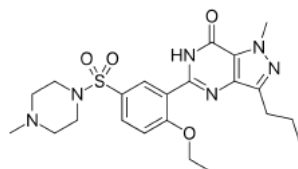
The interaction between these and the body and the impact on various conditions is constantly researched and up for debate

Therefore, unlike pharmaceuticals, many foods for health products are formulated from a mixture of active ingredients

MEDICAL SOLUTION



Chemical Name	Sildenafil
---------------	------------



1 ACTIVE
INGREDIENT

NUTRACEUTICAL/FUNCTIONAL FOODS SOLUTION



7 ACTIVE
INGREDIENTS

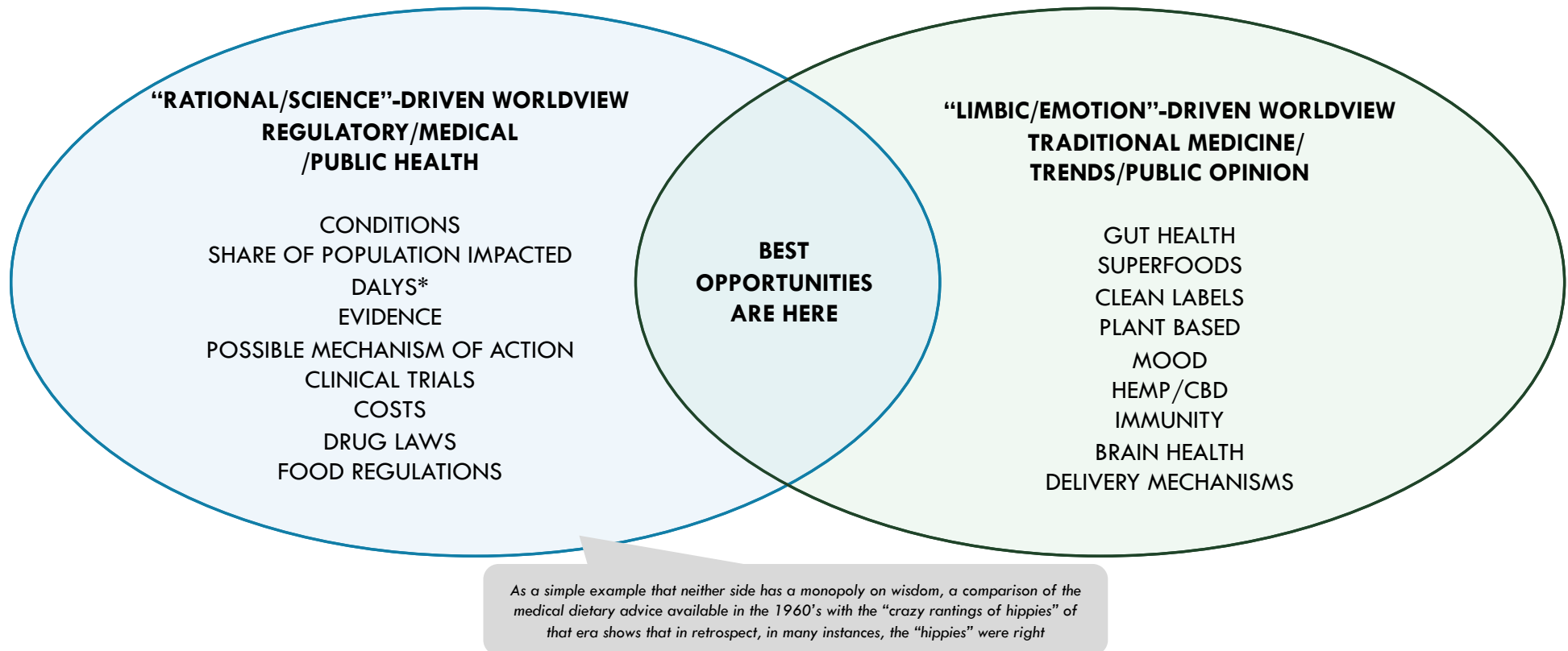
Formulation:

Each tablet contains:

Trigonella foenum-graecum(Fenugreek - Testofen®) ext. dry conc.	300mg
From dry seed	9.9g (9900mg)
Panax ginseng(Korean ginseng) ext. dry conc.	135mg
From dry seed	1.35g (1350mg)
Urtica dioica (Nettle) ext. dry conc.	100mg
From dry root	1g (1000mg)
Avena sativa(Oats) ext. dry conc.	1g (1000mg)
From fresh herb	1g (1000mg)
AND	
Magnesium aspartate dihydrate equiv. to magnesium	16.88mg
Zinc amino acid chelate equiv. to zinc	15mg
Pyridoxine hydrochloride	6mg
Equiv. Pyridoxine (Vitamin B6)	4.94mg

The best opportunities for success in Foods for Health exist at the intersection of the rational/scientific and limbic/emotion driven worldviews

DIFFERENT FRAMES OF REFERENCE EXIST FOR EVALUATING FFH



* DALYS = Disability Adjusted Life Years

As a result of all this complexity, how doctors see the world is not the same as how retailers typically organise their “Foods for Health” range

HOW A DOCTOR MIGHT SEE THE WORLD: BROAD CATEGORIES FROM A MEDICAL POINT-OF-VIEW

		Infectious Diseases	Cancer	Cardio-vascular	Metabolic /Obesity	Inflammation	Maternal /Development	Physical Degeneration	Brain Degeneration	Mental Health
HOW RETAILERS TYPICALLY ORGANISE THEIR STORE: BROAD CATEGORIES FROM A RETAIL POINT-OF-VIEW	Allergy & Sinus	○	○	○	○	●	○	○	○	○
	Bone & Joint Health	○	○	○	◐	◐	○	●	◐	○
	Brain & Mood Health	○	○	○	○	○	○	○	●	●
	Cough, Cold & Flu	●	○	○	○	○	○	○	○	○
	Diet & Weight Management	○	○	●	●	◐	○	○	○	○
	Digestive Health & Detox	●	○	○	◐	●	○	○	○	○
	Energy Support	○	○	○	◐	○	○	○	○	○
	Eye Health	○	○	○	○	◐	○	●	○	○
	General Wellness Support	◐	◐	◐	◐	◐	◐	◐	◐	◐
	Hair, Skin & Nails	◐	○	○	○	◐	○	●	○	○
	Heart Health	○	○	●	◐	◐	○	○	○	○
	Hormone Support	○	○	○	○	○	○	○	○	○
	Immune Health	●	◐	○	○	●	○	○	◐	○
	Pain Relief	○	◐	○	○	○	○	○	○	○
	Pregnancy/Maternity	○	○	○	○	○	●	○	○	○
	Sexual Health	◐	○	◐	◐	○	○	○	○	○
	Skin Ailments	○	○	○	○	◐	○	○	○	○
	Sleep Support	○	○	○	○	○	○	○	◐	◐
	Sports Nutrition	○	○	○	◐	○	○	◐	○	○
	Stress Support	○	○	○	○	○	○	○	○	●

SITUATION & PATH FORWARD SUMMARY: Western Australia needs a number of missing pieces to support the emergence of a Foods for Health sector

Western Australia is good at producing safe, high quality food

- Western Australia has a large and well developed food industry
- Western Australia has clear comparative advantage in food and agriculture with proven drivers of success

Western Australia produces a wide range of foods

- Western Australia has a good spread of agrifood sectors producing a wider range of categories, sub-categories and products

Western Australia is not yet positioned for success in Foods for Health

- Success in FFH looks like a complete industry ecology with firms of all sizes, occupying all available market niches

- Beyond the farmgate and primary processing, Western Australia lacks some of the requirements for success in foods for health

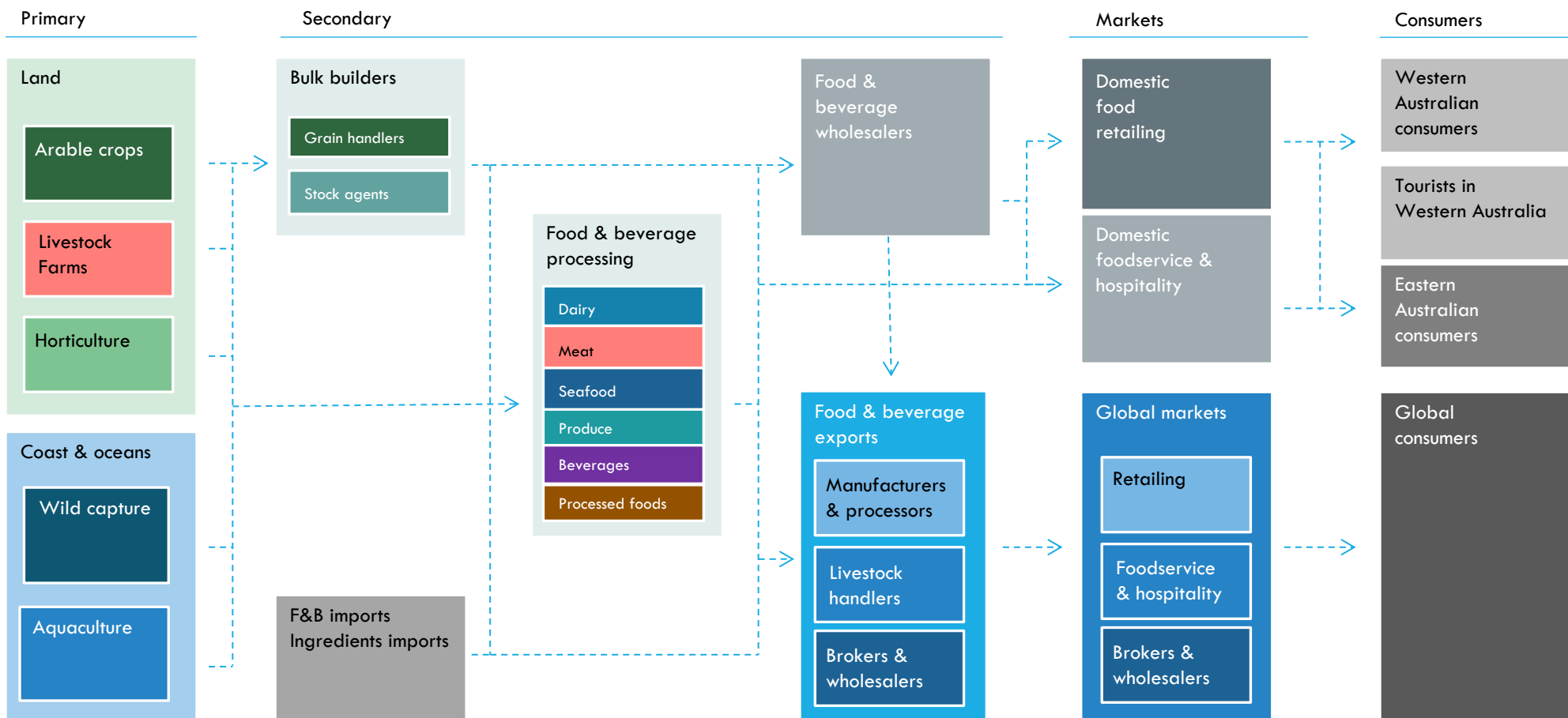
Western Australia is currently in the early stage of the process of developing a FFH industry

- Many of the product and packaging forms required to deliver functional products are not available locally in Western Australia at scale
- Foods for Health inputs available to Western Australia vary in terms of the time required to “bring them online”
- Oats provide a clear example of a category where Western Australia has world class capabilities that appears ripe for an expansion into foods for health

Western Australia needs a plan to develop the missing pieces as the industry evolves

Western Australia has a large and well developed food industry

SIMPLIFIED MODEL OF WA AGRI-FOOD INDUSTRY



Western Australia has clear comparative advantage in food and agriculture with proven drivers of success

SOURCES OF WA COMPARATIVE ADVANTAGE IN FOOD & AGRICULTURE

Drivers of success in F&B		Raw Materials & Ingredients	Retail-Ready Products
<p>Massive land area with small population</p> <p>Available water (not always in the right place)</p> <p>Mixture of climates (tropical to Mediterranean)</p> <p>Isolated island nation; pest/disease free status</p> <p>Located close to Asia</p> <p>Counter-seasonal to the Northern Hemisphere</p>	Natural Resources	Arable Crops	<p>Breakfast cereals</p> <p>Confectionery</p> <p>Dips/spreads</p> <p>Fermented foods</p> <p>Grain-based products</p> <p>Hand held meals</p> <p>Marinated foods</p> <p>Nut butter</p> <p>Pasta products</p> <p>Ready meals</p> <p>Snacks</p> <p>Beer</p> <p>Wine</p> <p>Cider</p> <p>Alcoholic spirits</p> <p>Juices & soft drinks</p>
<p>Honest, ethical culture</p> <p>Educated/professional farmers & orchardists</p> <p>Deep farming knowledge & experience</p> <p>Pool of capable scientists and researchers</p>	Human Resources	Horticulture	
<p>Investing in scientific research</p> <p>Multiple world-class universities</p> <p>R&D activities underway in multiple areas</p>	Science & Technology	Dairy	
<p>Functioning legal system/rule-of-law</p> <p>Strong food safety standards & systems</p> <p>Robust biosecurity & border control</p> <p>Respected sustainable fisheries management</p>	Supportive Government	Meat	
		Seafood	

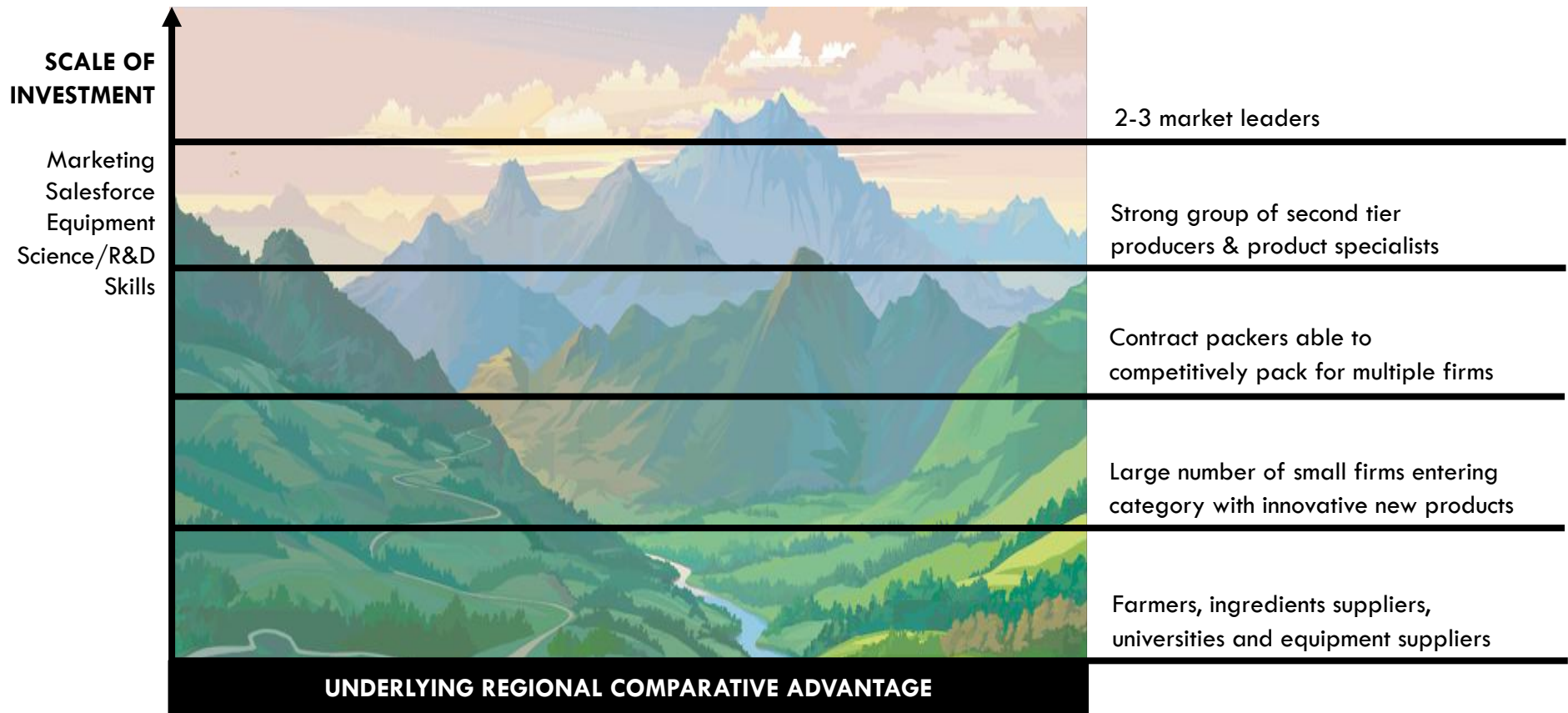
Western Australia has a good spread of agrifood sectors producing a wide range of categories, sub-categories and products

KEY WA AGRIFOOD SECTORS, CATEGORIES & PRODUCTS

ARABLE	HORTICULTURE	DAIRY	MEAT	SEAFOOD	PROCESSED FOODS	BEVERAGES	OTHER
Wheat	FRUIT	Fluid milk	Beef	WILD CAPTURE	Breakfast cereal	Wine	Honey
Barley	Apples	Yoghurt	Lamb	Rock lobster	Confectionery	Beer	Animal feeds
Oats	Avocados	Cheese	Chicken	Prawns	Baking ingred.	Cider	Seeds for sowing
Canola	Strawberries	-	Pork	AQUACULTURE	Dips/spreads	Juice	
Lupins	Melons	Alternative dairy	Goat		Fermented foods	Soft drinks	
Specialty grains	Blueberries		Camel		Grain products	Adult soft drinks	
Specialty seeds	Figs		-		Hand held meals	Mineral water	
	Grapes		Cured meats	Oysters	Marinated foods	Spirits	
	Mandarins		Beef jerky	Abalone	Nut butter		
	Nuts			-	Pasta		
	Olives			Processed seafood	Ready meals		
	Oranges				Snacks		
	VEGETABLES				Alternative Proteins		
	Carrots						
	Onions						
	Potatoes						
	Beans						
	BUSH CROPS						

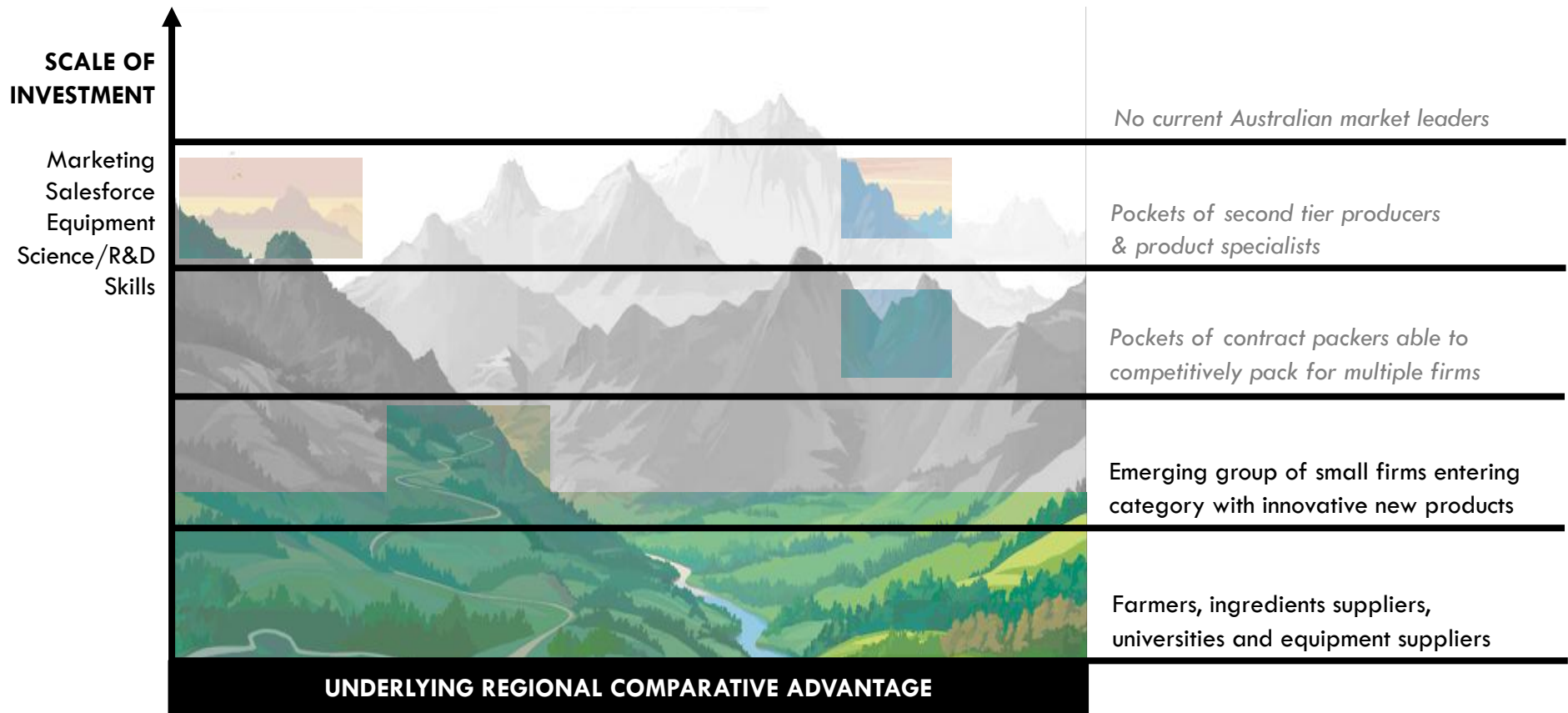
Success in FFH looks like a complete industry ecology with firms of all sizes, occupying all available market niches

WHAT DOES SUCCESS IN FFH LOOK LIKE?



Western Australia is currently in the early stage of the process of developing a FFH industry

WHERE IS WA CURRENTLY IN DEVELOPING A FFH INDUSTRY?



Beyond the farmgate and primary processing, Western Australia lacks some of the requirements for success in foods for health

SCORECARD: CHARACTERISTICS REQUIRED FOR SUCCESS IN FFH

		Perth, W. Australia	Melbourne, Victoria	Auckland, NZ	Chicago, Illinois	Toronto, Ontario	Copenhagen, Denmark
ENVIRONMENT	Natural resources	●	●	●	●	●	●
	Low cost ingredients	●	●	●	●	●	◐
	Efficient ingredient logistics	●	●	●	●	●	●
	Primary processing at scale	●	●	●	●	●	●
	Reputation for food safety	●	●	●	◐	●	●
	“Clean & Green” reputation	●	●	●	○	◐	●
GOVERNMENT	Access to markets	●	●	●	●	●	●
	World-class FFH science	○	◐	◐	◐	◐	●
	Processing technology frontier	○	◐	◐	●	◐	●
	Numerous firms of all sizes	○	●	●	●	●	●
	FFH processing at scale	○	●	●	●	●	●
	Strong FFH brands	○	●	●	●	◐	◐
	FFH salesforce in place	○	◐	◐	●	◐	●
INDUSTRY	Shelf space at retail	○	●	●	●	●	◐

New Zealand demonstrates a more fully developed Foods For Health industry

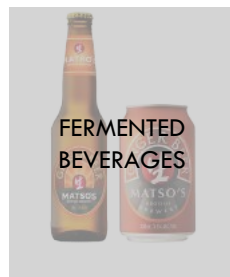
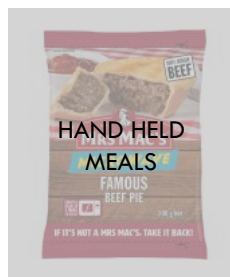
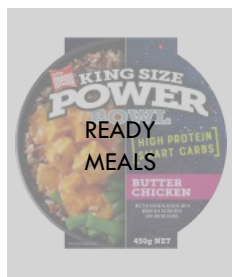
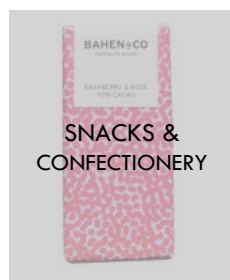
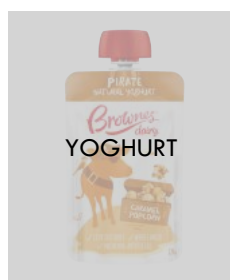
WHAT DOES SUCCESS IN FFH LOOK LIKE?



Many of the product and packaging forms required to deliver functional products are not available locally in WA at scale

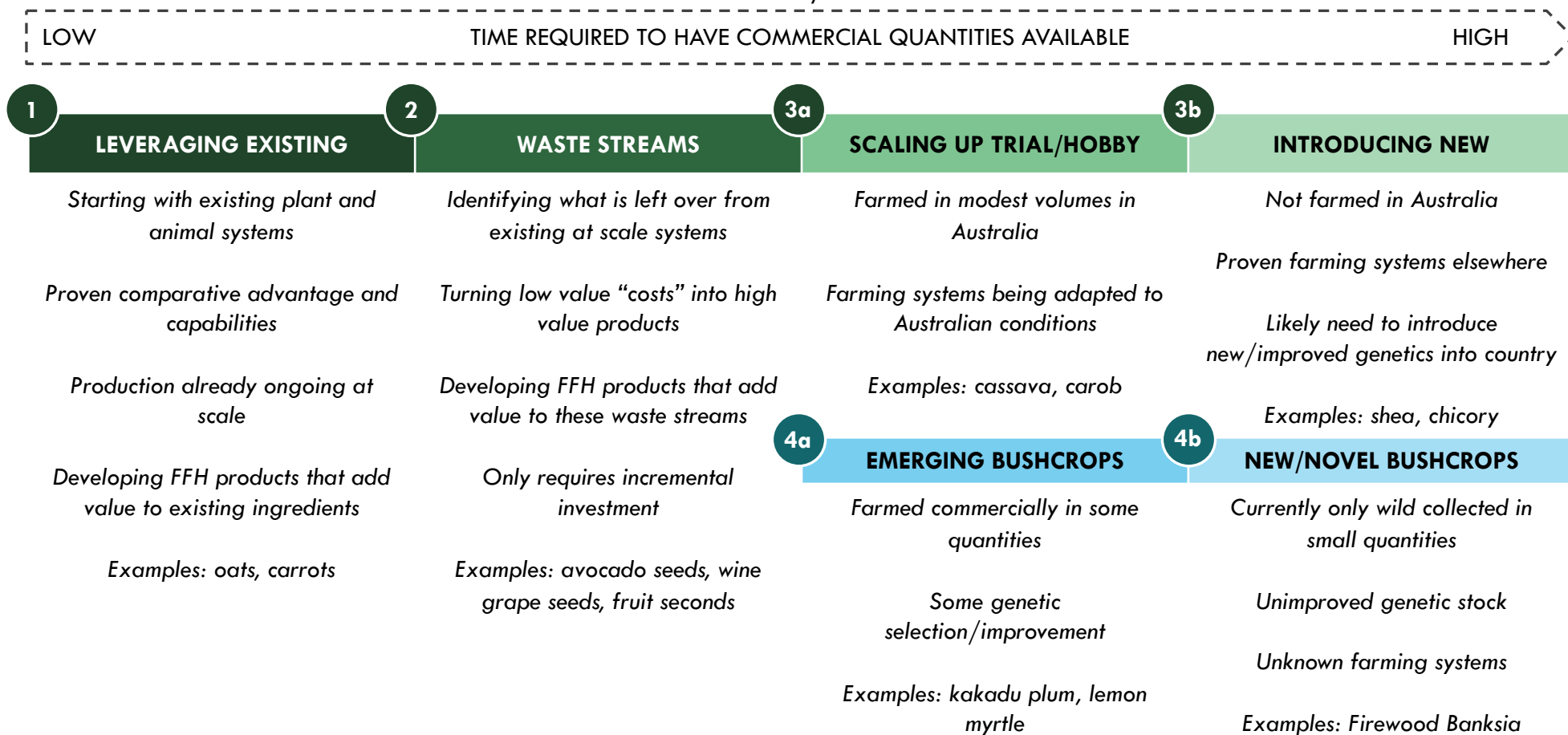
POSSIBLE FFH PRODUCT, PACKAGING AND/OR PROCESSING FORMS

CURRENTLY PRESENT IN WA AT SCALE

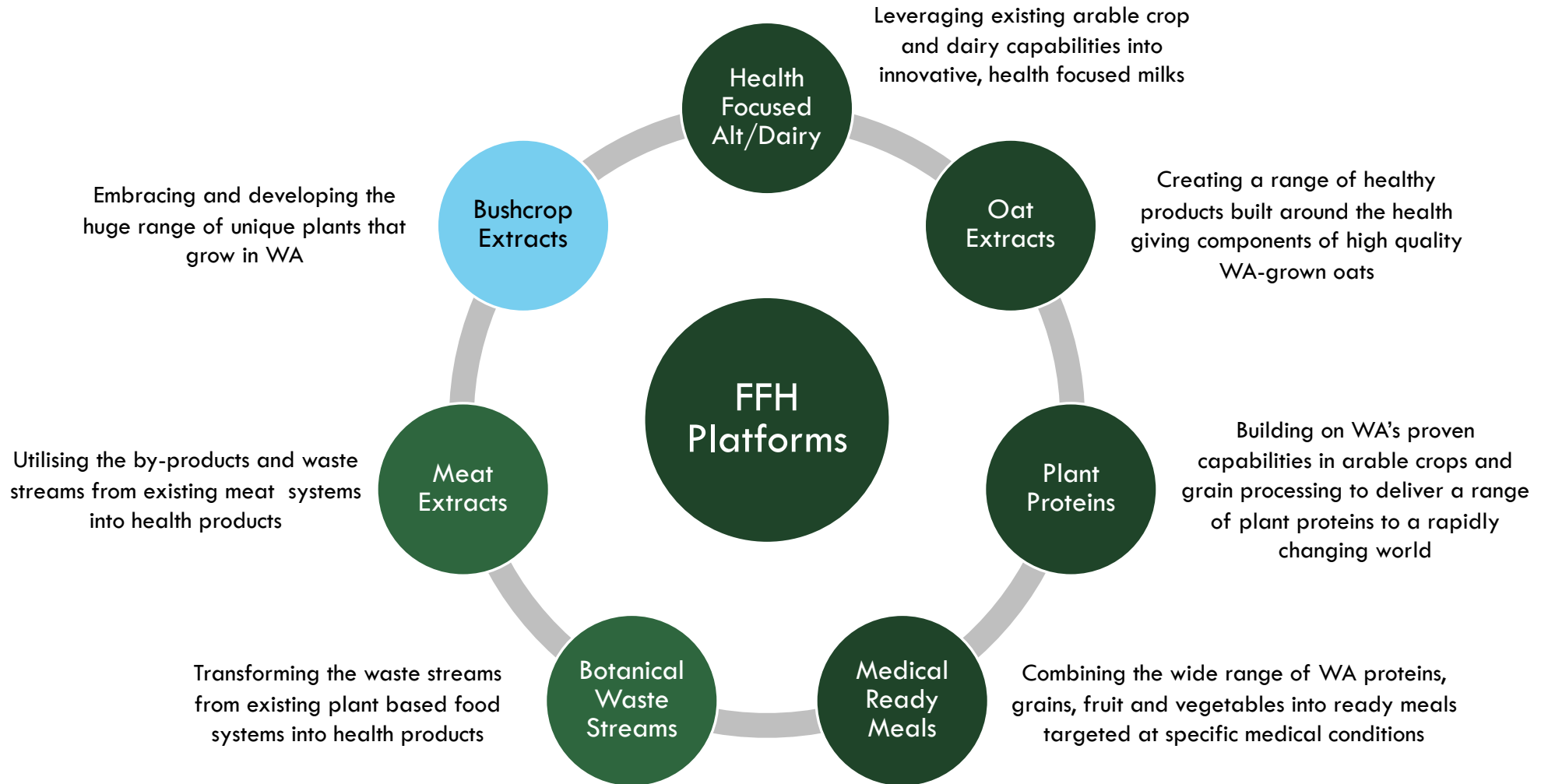


Foods for Health inputs available to Western Australia vary in terms of the time required to “bring them online”

WA FFH GROWTH STRATEGY / PATHWAY FOR EXPANSION

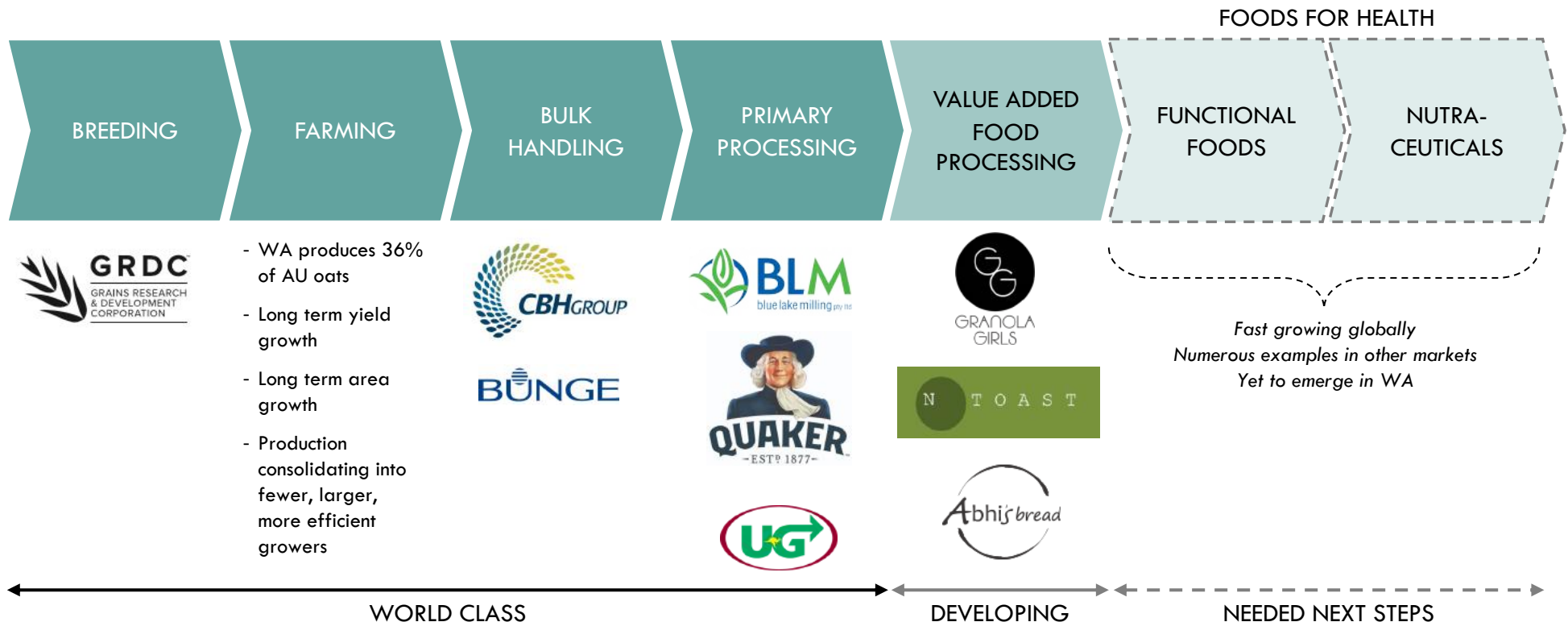


Seven broad Food For Health platforms emerges from the research as high potential opportunities for Western Australia



Oats provide a clear example of a category where WA has world class capabilities that appears ripe for an expansion into foods for health

LEVEL OF SECTOR DEVELOPMENT IN WA: EXAMPLE OATS



The seven identified Foods for Health platforms are spread out across the conceptual strategic timeframe presented earlier

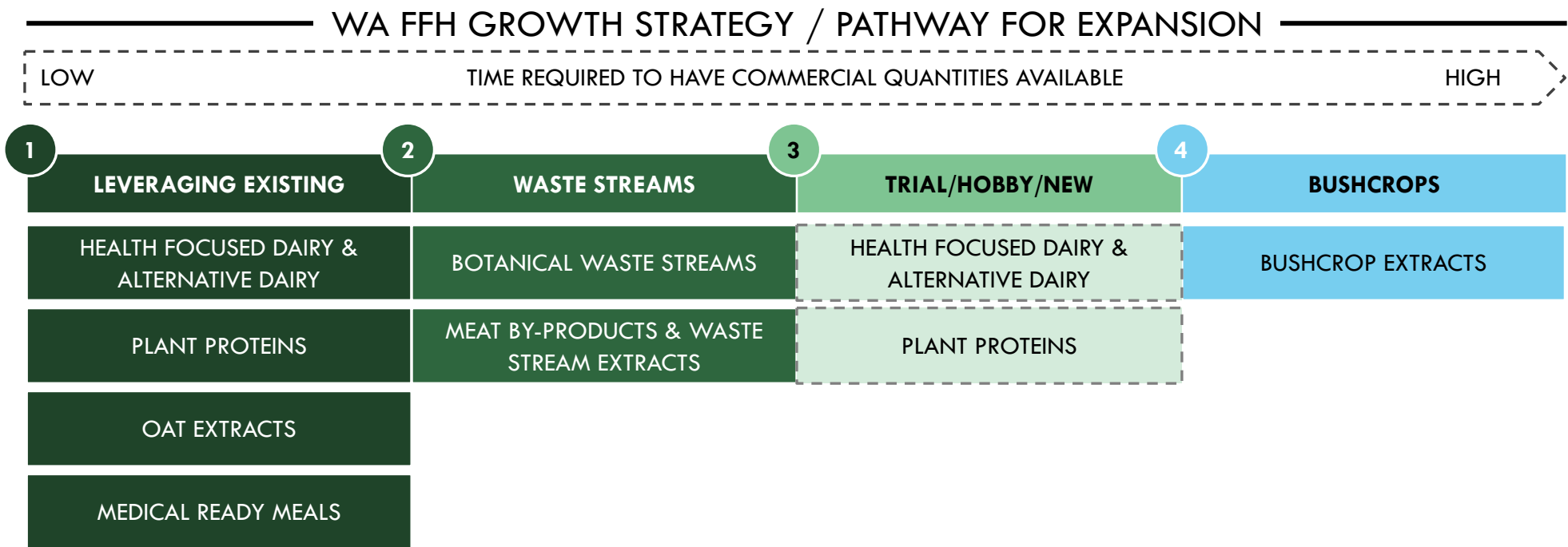


TABLE OF CONTENTS

page 7	page 17	page 54	page 75	page 105	page 133
<i>Context, Markets and Process</i>	<i>Conditions, Concepts and Challenges</i>	<i>Health Focused Dairy/Alternative Dairy</i>	<i>Oat Extracts</i>	<i>Plant Proteins</i>	<i>Medical/Health Focused Ready Meals</i>
page 161	page 205	page 233	page 262	page 337	
<i>Botanical Waste Streams</i>	<i>Meat Extracts</i>	<i>Bushcrop Extracts</i>	<i>Other Opportunities</i>	<i>Appendix I Markets & Conditions Details</i>	

Why health-focused dairy/alternative dairy? Because there is large and growing demand worldwide

"The evolving lifestyles of people and disposable income are factors expected to spur opportunities for the market... The increasing cognizance about gut health will further fuel demand for yogurt, kefir, and other fermented dairy products, in turn, bolster healthy growth of the market... [Dairy] is expected to experience a rapid growth rate... due to the growing demand for clean-label dairy products. The shifting consumer preference towards organic, healthy, non-GMO, lactose-free, and non-fat milk and dairy foods will aid expansion."



"[Dairy] products offer various nutrients such as calcium, proteins, zinc, magnesium, and vitamin D and B12... The rising demand for milk and milk-based ingredients is one of the primary factors supporting the market growth. This can be attributed to population growth, rising incomes, health consciousness and the thriving food and beverage industry... There has been a rise in the demand for clean label products which are free from additives, artificial preservatives or chemicals."



"In the United States, Europe, and China, more than 5%, 10%, and 90% of the population are intolerant to lactose, respectively. In these markets, lactose-free dairy products are witnessing immense popularity. According to the majority of the population, products with low levels of lactose and sugar are considered to be healthy."



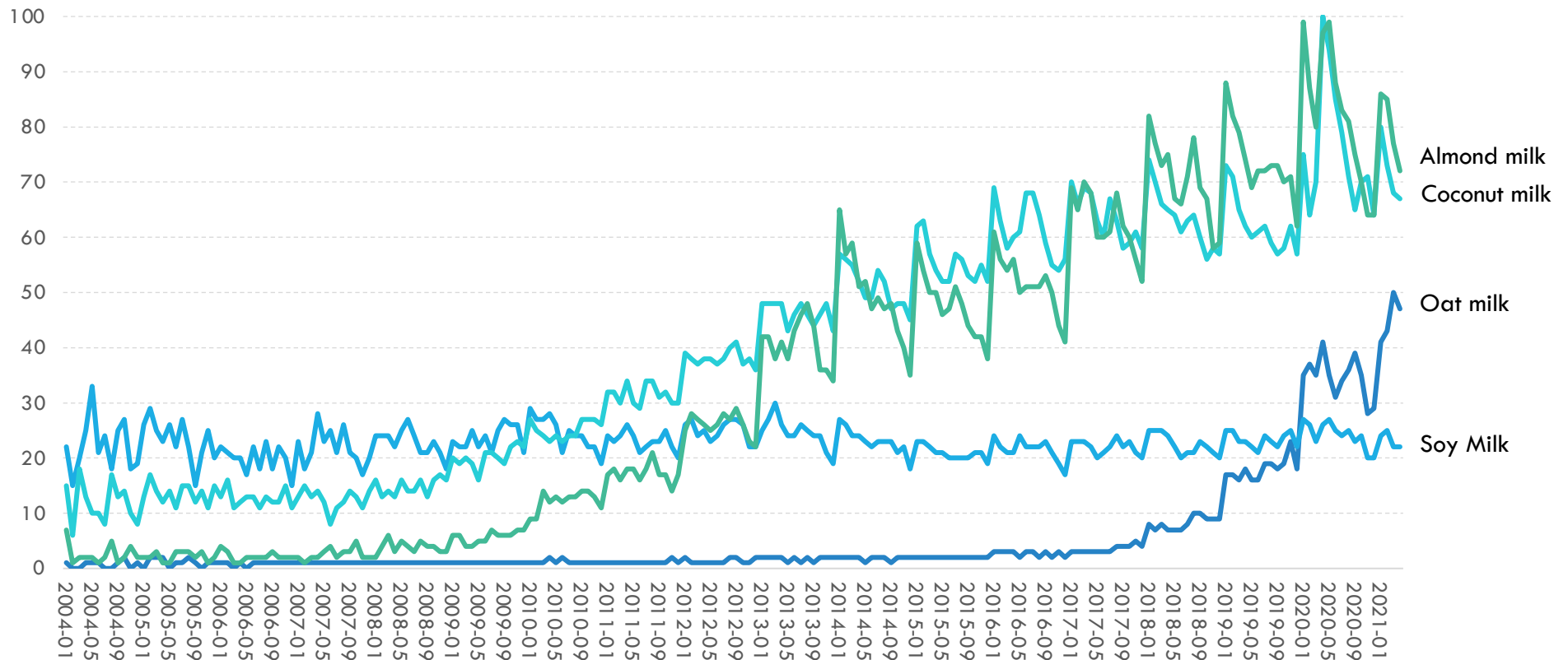
"The rise in demand for plant-based alternatives and changing consumer diets utilizing milk alternatives are driving the demand for dairy alternatives. Increasing occurrence of milk allergies or cases of lactose intolerance is expected to drive the market further... Changing consumer preferences caused by environmental or moral concerns resulting in the mass adoption of vegan or similar diets are expected to positively impact the market growth... Europe... has seen significant growth in the vegan population, resulting in the high market growth in the region."



Global interest in alternative dairy milks is growing (other than soy)

17Y WORLDWIDE GOOGLE TRENDS SEARCH INTEREST INDEX OVER TIME*

Relative index; 2004-2021

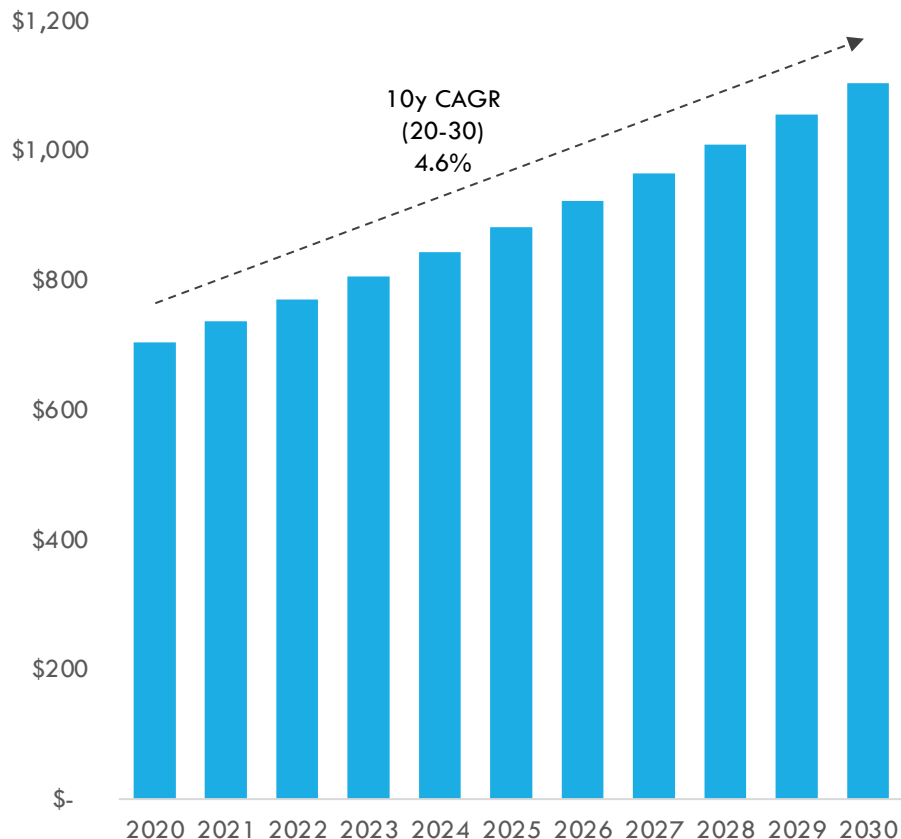


NOTE: Numbers represent search interest relative to the highest point on the chart for the given region and time. A value of 100 is the peak popularity for the term. A value of 50 means that the term is half as popular. Source: Google Trends; Coriolis analysis

Both dairy and alternative dairy are forecast to grow strongly over the next decade

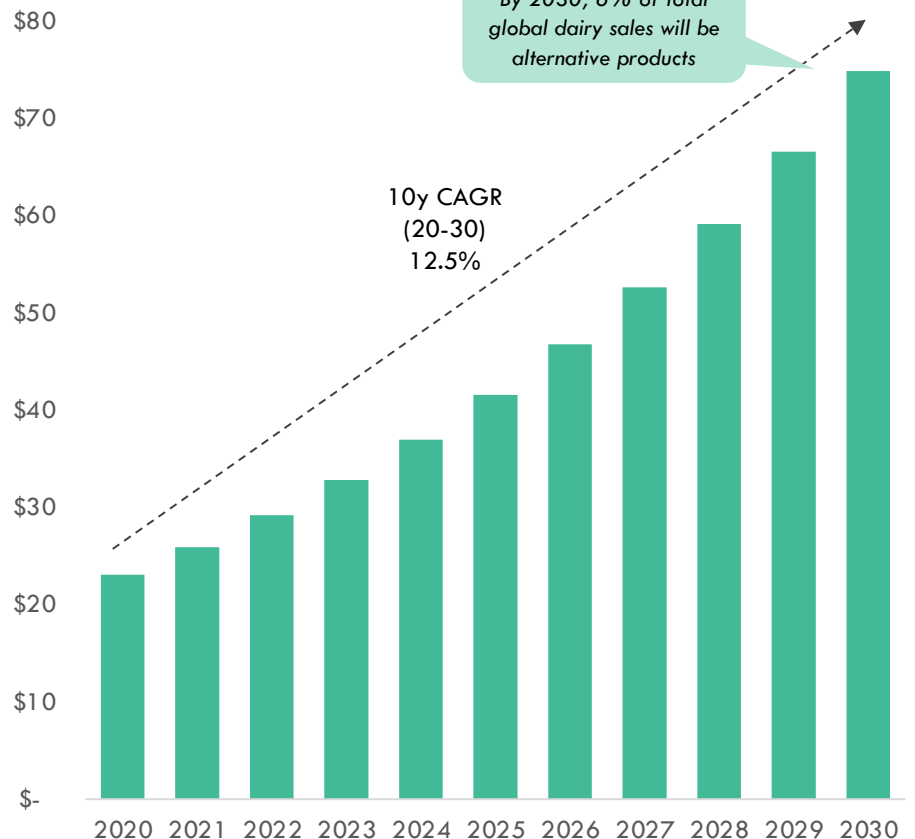
GLOBAL DAIRY MARKET VALUE

US\$, b; 2020-2030

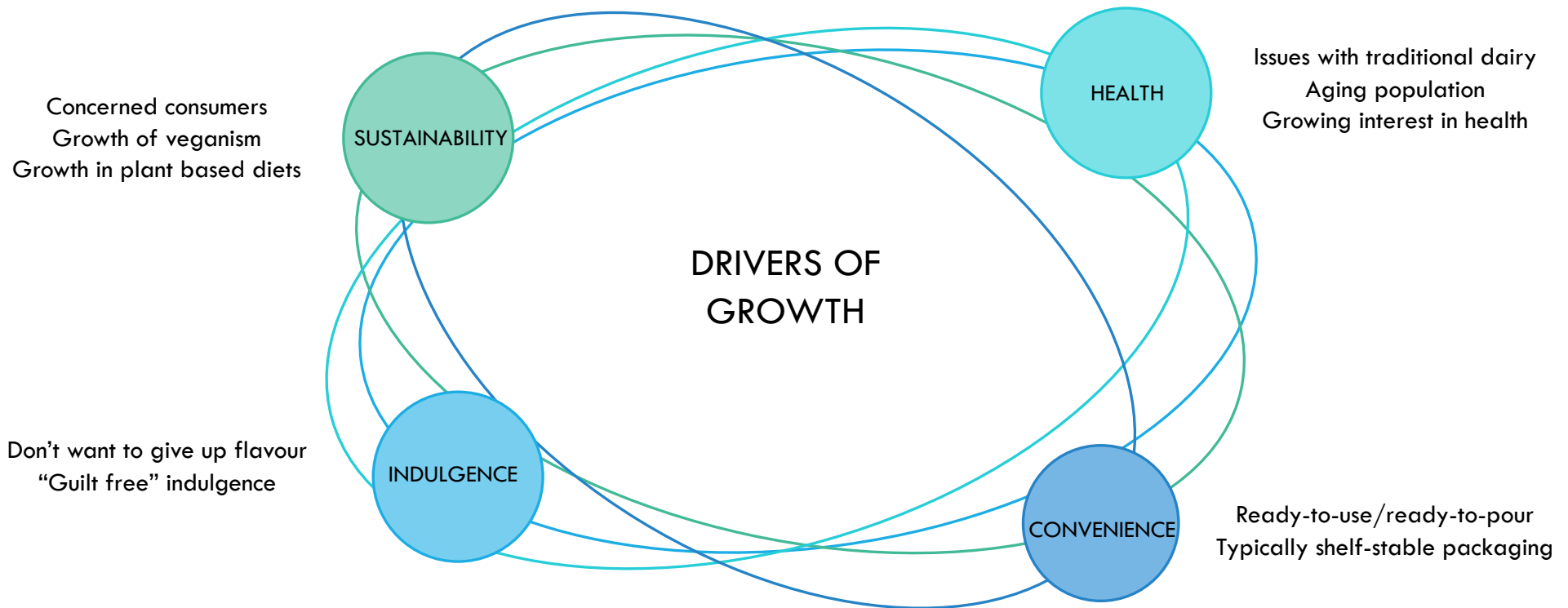


GLOBAL ALTERNATIVE DAIRY VALUE

US\$, b; 2020-2030



Global growth is coming from solid, long term drivers of growth



How could we do it?

STRAWMAN FOR DISCUSSION

VISION:

Western Australia builds a strong dairy/alternative dairy sector targeting health leading to an at-scale further processing industry supplying Australia & export markets

1

Bring together the “pieces of the puzzle” already in place in Western Australia

Create a “coalition of the willing” to take to opportunity forward

2

Develop a relatively simple initial product o “get the ball rolling”

Identify a science and research agenda to develop more differentiated products

3

Build market, initially targeting Australia, followed by developed Asia

Develop supply chains into these key buyers

What sort of products are we suggesting?

HEALTH FOCUSED DAIRY



Functional
Dairy



Oats



Pea



Hemp



Engineered
Dairy



Barley



Almond



Coconut

What is the development pathway?

Higher complexity
More science required
Greater capabilities needed



STAGE I
Healthy Functional and
Alternative Dairy Products



STAGE II
Health Focused
Functional Protein Shakes



STAGE III
Ranges Targeting Specific
Health Concerns or Conditions



STAGE IV
“Hospital Ready” Medical Products
Suited to Specific Conditions

The health-focused dairy/alternative dairy platform both delivers nutrition and can act as a delivery vehicle for functional components

MEDICAL

WHICH BROAD CATEGORIES (FROM A MEDICAL POINT-OF-VIEW) CAN BE TARGETED WITH THIS PLATFORM?

Infectious Diseases	Cancer	Cardio-vascular	Metabolic /Obesity	Inflammation	Maternal /Development	Physical Degeneration	Brain Degeneration	Mental Health

RETAIL

WHICH BROAD CATEGORIES (FROM A RETAIL POINT-OF-VIEW) CAN BE TARGETED WITH THIS PLATFORM?

Allergy & Sinus	Bone & Joint Health	Brain & Mood Health	Cough, Cold & Flu	Diet & Weight Management	Digestive Health & Detox	Energy Support	Eye Health	General Wellness Support	Hair, Skin & Nails
Heart Health	Hormone Support	Immune Health	Pain Relief	Pregnancy /Maternity	Sexual Health	Skin Ailments	Sleep Support	Sports Nutrition	Stress Support

HOW SUITABLE IS THIS PLATFORM FOR DELIVERY OF FOODS FOR HEALTH OUTCOMES IN THIS AREA?

LOW

MEDIUM

HIGH

Western Australian healthy dairy/alternative milk is well positioned to execute on and deliver key trends

CORIOLIS FOOD & BEVERAGE TRENDScopeSM

TIME SAVING	FAST	EASY OPEN	SOCIAL	INSTA READY	PICTURESQUE
HASSLE FREE	SIMPLIFIES	EASY	REWARDS	FARM TOUR	FUN
LOW EFFORT	CONVENIENCE	RANGE	CONNECTIONS	INVOLVEMENT	ARTISAN
SOLUTIONS	READY TO COOK	READY TO EAT/USE	HAND CRAFTED	SMALL BATCH	SENSORY
MICROWAVE	REUSABLE	STORY TELLING	AUTHENTIC	CELLAR DOOR	AGED
SUPERIOR	RICH FLAVOUR	SPECIAL EDITION	TRADITIONAL	RESPONSIBLE	FAMILY OWNED
DISTINCT	PROMOTED	SPONSOR	CERTIFIED	HEIRLOOM	FAIR TRADE
ENDORSED	PREMIUM	ADVERTISED	PROTECTED	STEWARDSHIP	TRADE AID
FAMOUS	AWARD WINNING	"ESTATE" GROWN	LIFE CYCLE	TRACEABLE	ETHICAL
QUALITY	EXPENSIVE	RARE/UNIQUE	SOCIALLY AWARE	INDIGENOUS	FREE RANGE
LOW FAT	LOW CARB	TRUSTED	LOCAL	NATIVE CROPS	GRASS FED
PROTEIN	FREE FROM	NO HORMONES	LOW INPUT	CARBON ZERO	EARTH FRIENDLY
NUTRACEUTICAL	HEALTH	NATURAL	ECOLOGICAL	SUSTAINABLE	LOW WATER USE
THERAPEUTIC	CHEMICAL FREE	PLANT BASED	BEE FRIENDLY	NITROGEN FIXING	ORGANIC
MEDICINAL	WELLNESS	PALEO	RENEWABLE	BIODYNAMIC	REGENERATIVE



Inherent characteristics

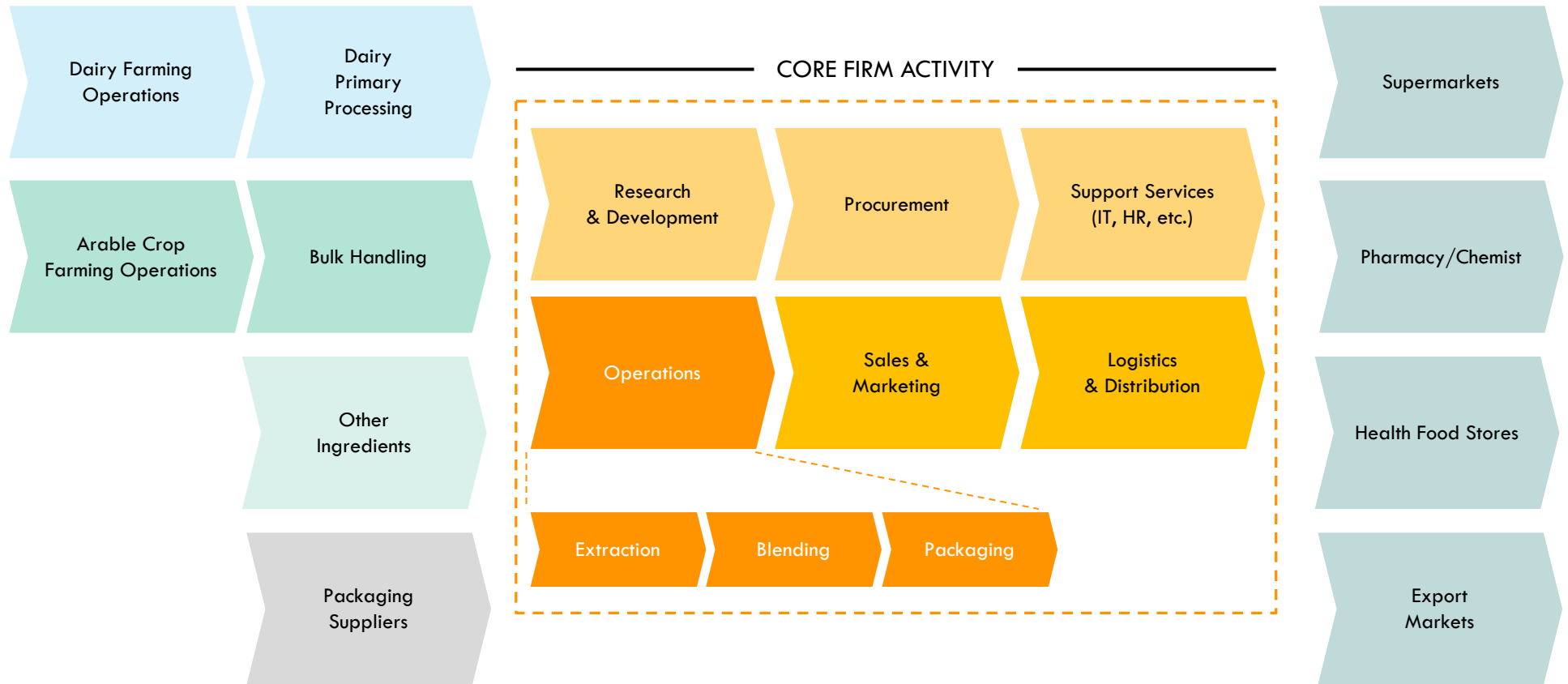


Need to develop



Optional extras

How would the value chain be organised?



Who are the high potential commercial partners for this opportunity?

	 	 	   	   
Firm	BROWNES DAIRY	HARVEY FRESH	BEGA DAIRY	MANASSEN/MUNDELLA
Relevant product categories	Milk Yoghurt/Cultured Other dairy Other beverages	Milk Yoghurt/Cultured Other dairy Other beverages	Milk Yoghurt/Cultured Other dairy Other beverages	Yoghurt Lactose free products Other dairy products

	  	  	 	 
Firm	WIDE OPEN AGRICULTURE	SMALL/MED LOCALS	PEPSICO/QUAKER	LARGE GRAIN HANDLERS
Relevant product categories	Oat milk Meats Produce Other products	Alternative dairy Other beverages	Beverages Cereals Muesli bars Other foods	Grain handling Grain processing Food ingredients

Who are the other key stakeholders?



Where is investment required?

1

INVESTING IN **NEW PRODUCT DEVELOPMENT**

- While clear global models exist, products are conceptual at this point
- Significant work needs to be undertaken to the initial finished consumer offer

2

INVESTING IN DEMONSTRATING THE **EFFICACY OF FUNCTIONAL INGREDIENTS**

- Solid evidence is required before specific, targeted health claims can be made
- Alternatively, initial products can leverage proven ingredients with accepted claims

3

INVESTING IN REQUIRED **PROCESSING & PACKAGING EQUIPMENT**

- WA dairy processors have available capacity and capability at UHT packaging
- Depending on the coalition that develops around this concept, additional equipment will likely be required

What health-focused dairy/alternative dairy products emerged from Stage I of the screen?

*MILK PHOSPHOLIPIDS
FOR COGNITIVE
DECLINE*

*BARLEY MILK FOR
HEALTHY BONES*

*HEMP MILK FOR THE
ELDERLY*

MILK PHOSPHOLIPIDS FOR COGNITIVE DECLINE

WHAT IS THE CONCEPT?	Beverage for cognitive decline		WHAT COULD IT LOOK LIKE?
GIVE ME THE ELEVATOR PITCH	Cognitive decline is particularly in apparent in aging populations. Beverages fortified with high levels of Phospholipids are easy to take for elderly. WA has the ability to win in this space.		
WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?		WHAT ARE THE KEY CHANNELS?	
WHAT SORT OF PRICING?	\$4.50/375ml (\$4-5/375ml)	Supermarkets	✓✓
WHAT SORT OF PACK SIZE?	375ml, 500ml	Pharmacy/Chemist	✓✓
WHAT PRODUCT FORM?	Drink (shake, smoothie)	Online	✓✓
WHAT FORM OF PACKAGING?	Plastic, tamper evident seal or cardboard/paper seal	Direct sales	✓✓✓✓
WHAT MARGINS WILL THE RETAILER TAKE?	40% (35-45%) of retail selling price	Duty Free	-
WHAT SORT OF PROFITABILITY?	EBITDA \$0.68/unit (\$0.50-0.90/unit) @15% of retail price (10-20%)	Daigou	-
		WHO IS THE COMPETITON?	
		Smaller, regional firms	
WHAT ARE THE POTENTIAL INGREDIENTS?	water, dairy based protein, phospholipids, chocolate flavour, vitamins, omegas, DHA*, selenium		



Insert
"Brain
Health"

*DHA = Docosahexaenoic acid (type of omega-3 fat); Photo credit: fair use/fair dealing; low resolution; complete product/brand for illustrative purposes; transformative, criticism, comment, scholarship & research; Source: Company websites, articles, publications, reports; Coriolis research and analysis

MILK PHOSPHOLIPIDS FOR COGNITIVE DECLINE

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD	
Cognitive decline		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO	SUPPLY CHAIN
	The Nutritionist Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Does or could 'grow' in WA <div></div>
	The Doctor Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Strength in inputs <div></div>
WHAT DO THE EXPERTS SAY?		WHAT'S IN IT FOR WESTERN AUSTRALIA?					Capabilities across the chain <div></div>
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?		HOW CAN WA FARMERS PARTICIPATE?					Clear partners <div></div>
<ul style="list-style-type: none">Phospholipid (PL) supplementation to help cells maintain strength and flexibility in the brain. PL's have been shown to dampen the activity and reactivity of the hypothalamic-pituitary-adrenal axis (HPAA).		<ul style="list-style-type: none">Produce cows for dairy extracts					PRIMARY SECTOR
WHAT DOES THE NUTRITIONIST SAY?		HOW CAN WA SCIENTISTS PARTICIPATE?					Mechanically produced <div></div>
Brain aging is not well understood or clearly elucidated.		<ul style="list-style-type: none">Research into role of Phospholipid on brain functionResearch into extracting and isolating the relevant PhospholipidsAdditional clinical trials into doseage					High performance genetics available <div></div>
WHAT DOES THE DOCTOR SAY?		WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					Proven, scalable production model <div></div>
Emerging evidence indicates that phospholipids, a specific type of fat, are capable of improving a variety of cognitive processes in both animals and humans. Further research is required in this area		WA grown ingredients Potential to develop IP controlled ingredients Trusted source/Safe supply					Required skills for success <div></div>
							PRODUCT CHARACTERISTICS
							Drought tolerant <div></div>
							Low input production <div></div>
							Wide range of uses <div></div>
							Full product utilisation <div></div>
							Indigenous knowledge <div></div>
							OVERALL <div></div>

Source: Company websites, articles, publications, reports; Coriolis research and analysis

BARLEY MILK FOR HEALTHY BONES

WHAT IS THE CONCEPT?

Vitamin, calcium and protein rich barley based drink to support bone health

GIVE ME THE ELEVATOR PITCH

Consumers are looking for high protein, high calcium non-dairy beverages (US\$2.4b category) for healthy bones (especially the elderly)

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?

\$4.50/375ml (\$4-5/375ml)

WHAT SORT OF PACK SIZE?

375ml, 500ml

WHAT PRODUCT FORM?

Drink (milk, shake, smoothie)

WHAT FORM OF PACKAGING?

Plastic, tamper evident seal or cardboard/paper seal

WHAT MARGINS WILL THE RETAILER TAKE?

40% (35-45%)
of retail selling price

WHAT SORT OF PROFITABILITY?

EBITDA \$0.68/unit (\$0.50-0.90/unit)
@15% of retail price (10-20%)

WHAT ARE THE KEY CHANNELS?

Supermarkets

✓✓✓✓

Pharmacy/Chemist

✓

Online

✓✓

Direct sales

-

Duty Free

-

Daigou

-

WHO IS THE COMPETITON?

AB Inbev
Smaller, regional firms

WHAT ARE THE POTENTIAL INGREDIENTS?

Barley milk, oatmilk, vitamin D, vitamin E, vitamin k, calcium, lupin protein, DHA*, fibre, flavours

WHAT COULD IT LOOK LIKE?



*DHA = Docosahexaenoic acid (type of omega-3 fat); Photo credit: fair use/fair dealing; low resolution; complete product/brand for illustrative purposes; transformative, criticism, comment, scholarship & research; Source: Company websites, articles, publications, reports; Coriolis research and analysis

BARLEY MILK FOR HEALTHY BONES

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD	
Bone density and health		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO	SUPPLY CHAIN
	The Nutritionist Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Does or could grow in WA <div></div>
	The Doctor Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Strength in inputs <div></div>
WHAT DO THE EXPERTS SAY?		WHAT'S IN IT FOR WESTERN AUSTRALIA?					Capabilities across the chain <div></div>
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?		HOW CAN WA FARMERS PARTICIPATE?					Clear partners <div></div>
<ul style="list-style-type: none">Approximately 80–90% of bone mineral content is comprised of calcium and phosphorus. Bone is a mineralized connective tissue in which calcium represents the major component, conferring bone strength and structure. Proper dietary calcium intake is important for bone development and metabolism.		<ul style="list-style-type: none">Keep growing barleyKeep making beer to use the brewers spent grain byproduct as the key input into the “milk”					PRIMARY SECTOR
WHAT DOES THE NUTRITIONIST SAY?		HOW CAN WA SCIENTISTS PARTICIPATE?					Mechanically harvested <div></div>
Calcium, Vita D, and exercise are the best things for your bones. Diets high in these are your best answer.		<ul style="list-style-type: none">Barley extract from brewing made into nutritional beverage (research)Research the barley protein extraction process (ensure solubility)Research ingredients to maximise bone strength properties					High performance genetics available <div></div>
WHAT DOES THE DOCTOR SAY?		WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					Proven, scalable production model <div></div>
This seems like a great use of the barley byproduct but it would need to be fortified to work as a supplement for bones.		WA grown ingredients Utilise byproduct from WA made beer Potential to develop IP controlled bacteria Trusted source/Safe supply					Required skills for success <div></div>
							PRODUCT CHARACTERISTICS
							Drought tolerant <div></div>
							Low input production <div></div>
							Wide range of uses <div></div>
							Full product utilisation <div></div>
							Indigenous knowledge <div></div>
							OVERALL <div></div>

Source: Company websites, articles, publications, reports; Coriolis research and analysis

HEMP MILK FOR THE ELDERLY

WHAT IS THE CONCEPT?

Elderly require high levels of easily digestible protein and healthy fats – hemp milk provides a suitable diet for the elderly

GIVE ME THE ELEVATOR PITCH

The elderly require high levels of easily digestible protein – hemp milk provide a highly nutritious option (25% calories from protein), and all essential amino acids. WA has the science and agronomy to develop a hemp industry.

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?	\$4.50/375ml (\$4-5/375ml)
WHAT SORT OF PACK SIZE?	375ml, 500ml
WHAT PRODUCT FORM?	Drink (milk, shake, smoothie)
WHAT FORM OF PACKAGING?	Plastic, tamper evident seal or cardboard/paper seal
WHAT MARGINS WILL THE RETAILER TAKE?	40% (35-45%) of retail selling price
WHAT SORT OF PROFITABILITY?	EBITDA \$0.68/unit (\$0.50-0.90/unit) @15% of retail price (10-20%)

WHAT ARE THE KEY CHANNELS?

Supermarkets	✓✓
Pharmacy/Chemist	✓✓✓✓
Online	✓✓
Direct sales	✓✓
Age Care Facility	✓✓✓✓
Daigou	-

WHO IS THE COMPETITON?

MNS, National & regional firms

WHAT ARE THE POTENTIAL INGREDIENTS?

Hemp (or other ingredients for the elderly) fortified with calcium, vitamins

WHAT COULD IT LOOK LIKE?



HEMP MILK FOR THE ELDERLY

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD
Overall health Muscle development Nutritional support		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO
	The Nutritionist Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>
	The Doctor Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					SUPPLY CHAIN
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?					
<ul style="list-style-type: none">Protein is an essential amino acid Amino acids aiding muscle building and reduce the susceptibility to osteoporosis. The essential amino acids are required for healthy body functions	<ul style="list-style-type: none">Grow hemp for use in food products (seed in particular)					
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					PRIMARY SECTOR
<p>Hemp provides a high-quality complete protein, with all essential amino acids. Hemp is also highly digestibility. Hemp seeds contain significant amounts of the amino acids methionine and cysteine, as well as very high levels of arginine and glutamic acid.</p>	<ul style="list-style-type: none">Ongoing research into targeted benefits of hemp and hemp productsResearch into effective dosages targeting the elderlyNPD for new and novel hemp products suitable for the elderly					Mechanically harvested
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					High performance genetics available
<p>Easily digestible protein is good for the elderly. They require higher levels of protein and healthy oils as they age.</p>	<p>WA grown ingredients Potential to develop IP controlled products Trusted source/Safe supply</p>					Proven, scalable production model
						Required skills for success
						PRODUCT CHARACTERISTICS
						Drought tolerant
						Low input production
						Wide range of uses
						Full product utilisation
						Indigenous knowledge
						OVERALL

TABLE OF CONTENTS

page 7	page 17	page 54	page 75	page 105	page 133
<i>Context, Markets and Process</i>	<i>Conditions, Concepts and Challenges</i>	<i>Health Focused Dairy/Alternative Dairy</i>	<i>Oat Extracts</i>	<i>Plant Proteins</i>	<i>Medical/Health Focused Ready Meals</i>
page 161	page 205	page 233	page 262	page 337	
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Why oat extracts? Because there is strong and growing evidence for the health benefits of oats

"Oat has always been regarded as a health-promoting food without clear knowledge of its specific health-related effects. However, today it is known for its effects on satiety and retarded absorption of nutrients as well as a deterrent of various disorders of the gastrointestinal tract. These beneficial effects are chiefly due to the soluble fiber content of oats. Today oats is among the richest and most economical sources of soluble dietary fiber. The present interest in soluble oat fiber originated from reports that showed that dietary oats can help in lowering cholesterol, postprandial blood glucose level; as well as modifying immune response and reducing risk of colon cancer."

Comprehensive REVIEWS in Food Science and Food Safety

"The beta-glucan found in oats may help keep cholesterol in check, according to a 2011 report. Looking at studies conducted over the previous 13 years, the report's authors determined that oat-derived beta-glucan may significantly reduce levels of total and LDL ("bad") cholesterol. The authors noted that, on average, daily oat consumption is associated with 5% and 7% reductions in total and LDL cholesterol levels, respectively. A 2014 meta-analysis found similar results. The researchers focused on studies that included at least 3 grams (g) of beta-glucan daily and found it reduced total cholesterol and LDL cholesterol, but did not impact HDL cholesterol levels or triglycerides."

verywellhealth

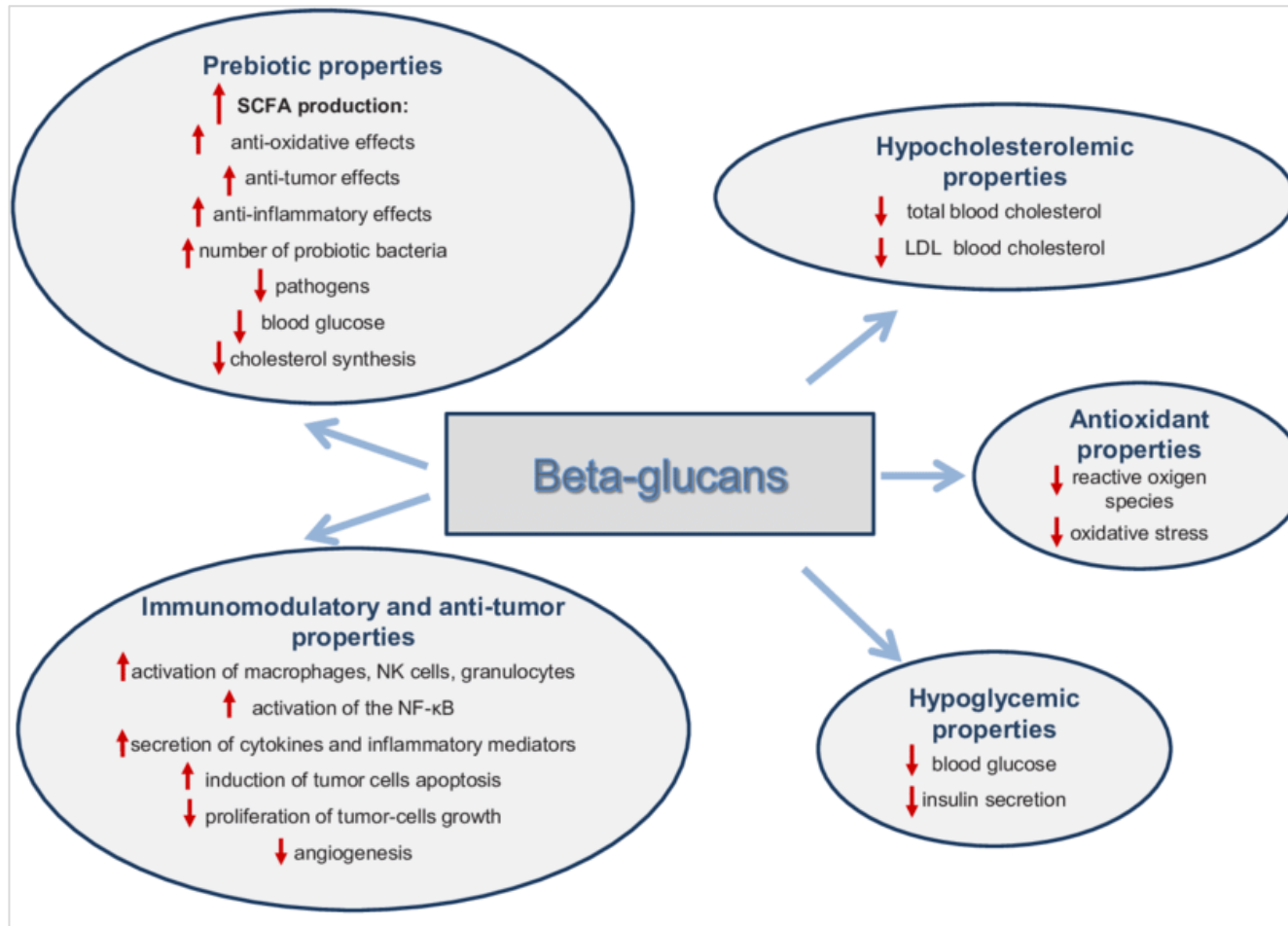
"Oat beta-glucan is a soluble fiber that is found in the cell wall of whole oats. It is comprised of long chains of glucose and is a polysaccharide. This fiber is not digested. It binds toxins and cholesterol in the digestive tract and helps them to be excreted. This compound has been shown to help lower the levels of cholesterol in the blood. The United States Food and Drug Administration (FDA) allows some foods [containing oats] to claim that they may reduce the risk of heart disease, if certain conditions are met... The mechanism by which oat beta-glucan is thought to lower cholesterol involves the secretion of bile from the gall bladder into the digestive tract. Bile contains toxins and cholesterol. If there is soluble fiber, such as oat beta-glucan, in the digestive tract, it can bind these compounds and excrete them in bowel movements."

InfoBloom

"High prevalence of chronic diseases such as obesity, diabetes, and cardiovascular diseases has fuelled the demand for oats in daily meals as it is a rich source of beta-glucan - an essential soluble fiber for the human body. This helps lower bad cholesterol and blood sugar levels and boosts the good bacteria vital to improve the digestive system of the body. According to the Centers for Disease Control and Prevention and Control (CDC), in the U.S., around 95 million people above 30 years of age have total cholesterol levels higher than 200mg/dL. Increasing concerns over such high cholesterol levels are projected to promote the demand for healthy foods and snacks."


GRAND VIEW RESEARCH

There is growing scientific support for the health giving properties of oats

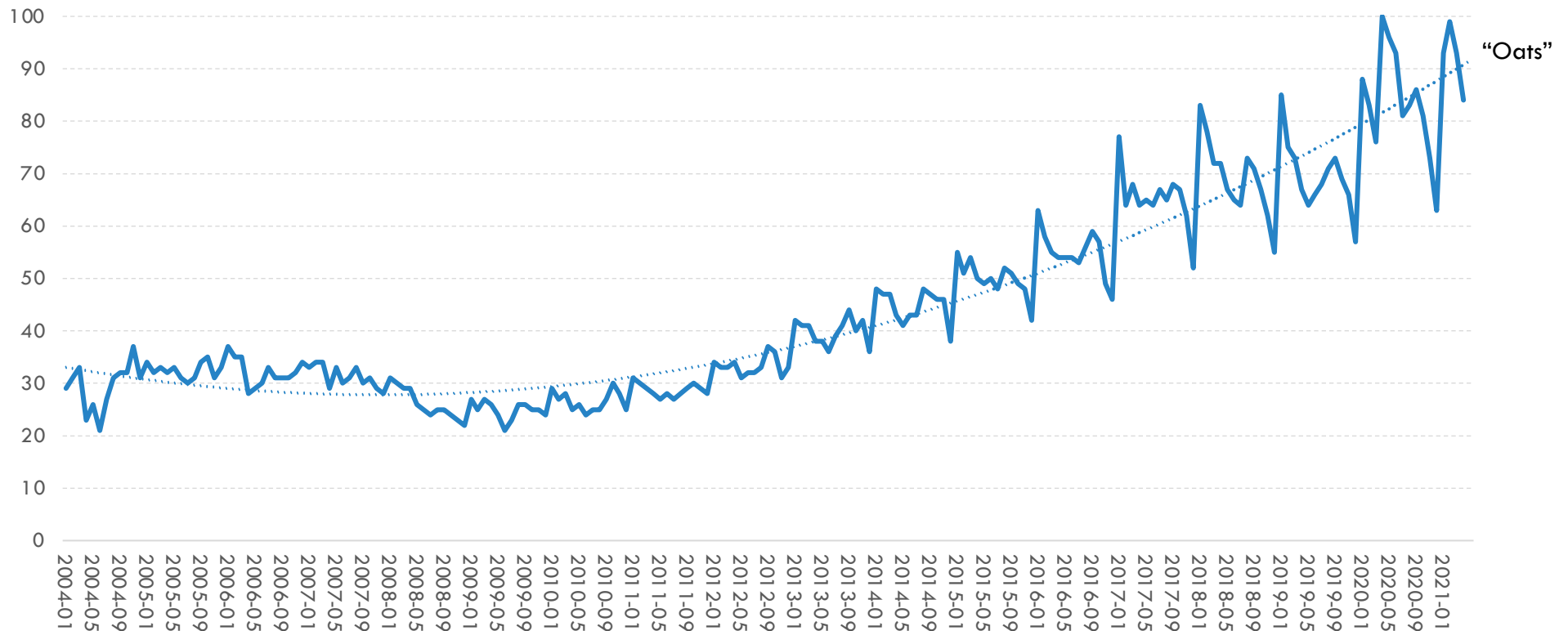


"Diet rich in beta-glucans has a positive effect on human health by preventing chronic non-communicable diseases, such as diabetes, hypercholesterolemia, obesity, cardiovascular diseases, and cancer."

Global interest in oats is growing

17Y WORLDWIDE GOOGLE TRENDS SEARCH INTEREST INDEX OVER TIME*

Relative index; 2004-2021



NOTE: Numbers represent search interest relative to the highest point on the chart for the given region and time. A value of 100 is the peak popularity for the term. A value of 50 means that the term is half as popular. Source: Google Trends; Coriolis analysis

Global demand for oat products is growing on the back of growing awareness of their health benefits

"Oats are abundantly nutritious grains, associated with the property of lowering blood cholesterol levels when consumed on a regular basis... Oats are among the most filling and healthiest breakfasts; reason being, the high soluble fiber content present in oats. When compared with cereals like rice and wheat, oats provide an increase in satiety due to the presence of high amounts of beta-glucan and the viscosity of the oatmeal. The viscosity of oats interferes with the mixing process in the digestive system, which initiates a greater feeling of fullness with a decreased feeling of hunger. Also, oats contain comparatively fewer calories than other cereals, making them a better option for weight loss."



"Rising awareness regarding the high nutritional value of oat-based snacks is anticipated to fuel their demand over the forecast period. Oats promote metabolism and healthy weight loss, along with reducing the risk of cardiovascular diseases and diabetes. As a result, processed food and snacks manufacturers are shifting their focus to healthy ingredients such as oats. The changing eating habits coupled with the availability of innovative products is anticipated to fuel the market. Rising health consciousness and awareness regarding the ingredients, additives, and preservatives used in snacks is anticipated to positively influence the product demand."



"The high nutritive content of oats is the major driver of the market. Additionally, an increase in preference for healthy meals and demand for convenience food is also driving the global oats market. Also, its added functional properties enhance its usage by the consumers, it is witnessed to be consumed majorly as a breakfast food. Moreover, the fast-paced lifestyle led by the working population has catalyzed the demand for ready-to-eat oats products... Consumption of oats granola has been witnessed with an increasing trend globally... Its high nutritional value and rising consumption of healthy snacks and bars among the young population are driving the market."



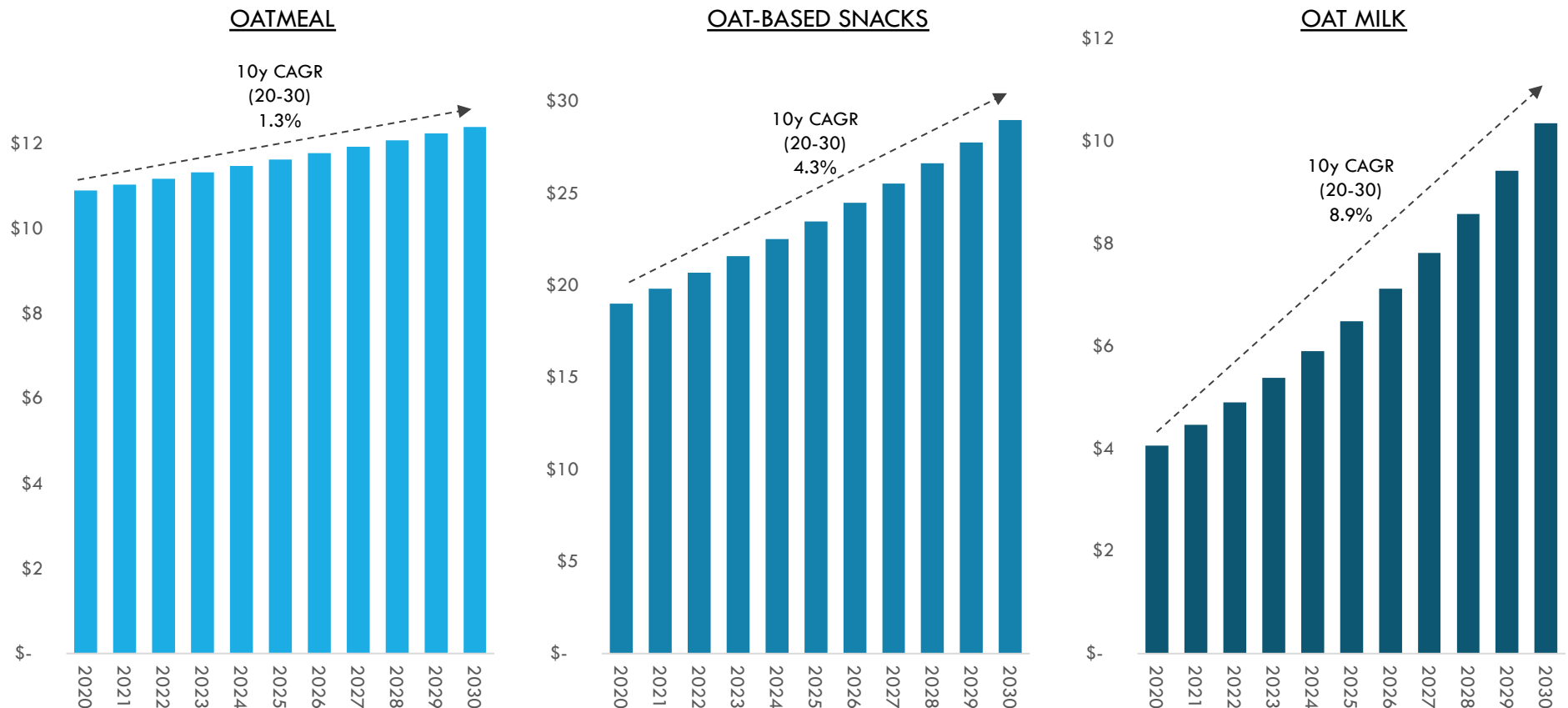
"The global oats market is anticipated to exhibit a strong growth... Rapid urbanization and consumption of unhealthy food products have significantly impacted the health conditions. This has increased the demand for oats all across the world. Gradual shift towards healthy lifestyle is supporting the market growth. Oat consists of high protein, minerals, dietary fiber, vitamins, and carbohydrates. Oats are also enriched in antioxidants that helps to safeguard body against various chronic diseases such as diabetes, cardiovascular diseases, and cancer. Growing awareness regarding various benefits associated with the consumption of oat is accelerating market growth."



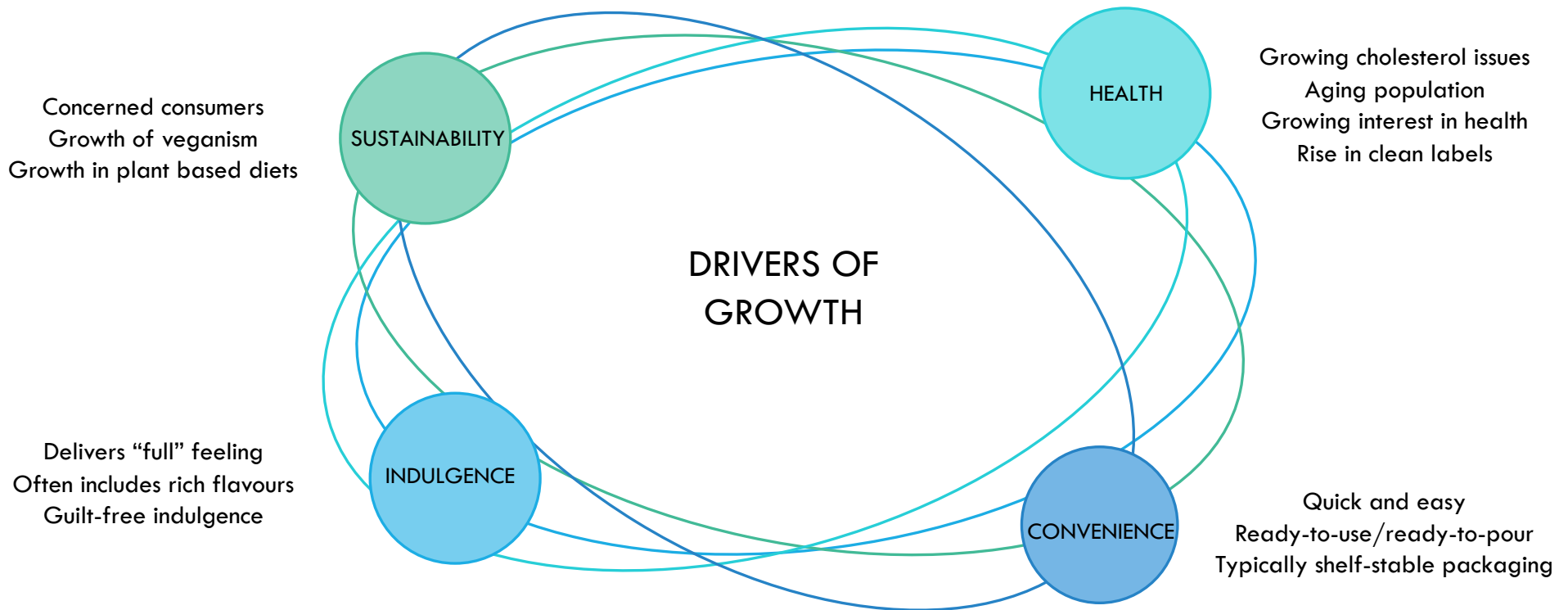
All major categories of oat-based products are forecast to grow globally over the next decade

GLOBAL MARKET VALUE: SELECT OAT BASED PRODUCTS

US\$, b; 2020-2030



Global growth is coming from solid, long term drivers of growth



How could we do it?

STRAWMAN FOR DISCUSSION

VISION:

Western Australia builds a strong oat extract sector targeting health, leading to an at-scale further processing industry supplying Australia & export markets

1

Conduct stocktake to assess existing WA capabilities in (1) oat powder production and (2) beta-glucan extraction

Understand what “pieces of the jigsaw” need to be put in place in Western Australia

Create a “coalition of the willing” to take to opportunity forward

2

Develop a relatively simple initial product leveraging in-place equipment to “get the ball rolling”

Identify a science and research agenda to develop more differentiated products

3

Build market, initially targeting direct sales and pharmacy/chemist channels; targeted approach to Asia initially

Ensure efficient supply chains into these key markets

What sort of products are we suggesting?

FUNCTIONAL



Functional
Oatmeal



Oat
Fibre

POWDERS



Instant
Oatmilk
Powder



Oat
Powder

SUPPLEMENTS



Beta-
Glucan



1,3/1,6
Beta-Glucan



Supplement
Targeting
Cholesterol



Supplement
Targeting
Immune

Oats are an extensible platform where the beta-glucan is used in a variety of forms, across a range of conditions

GUT HEALTH, LOWERING CHOLESTEROL, HEART HEALTH (CVD),
REDUCING APPETITE, PROVIDING ENERGY, SKIN CANCER



What is the development pathway?

Higher complexity
More science required
Greater capabilities needed



STAGE I
Healthy Functional Oat Products



STAGE II
Health Focused
Oat Powders



STAGE III
Oat Powder
Based Supplements

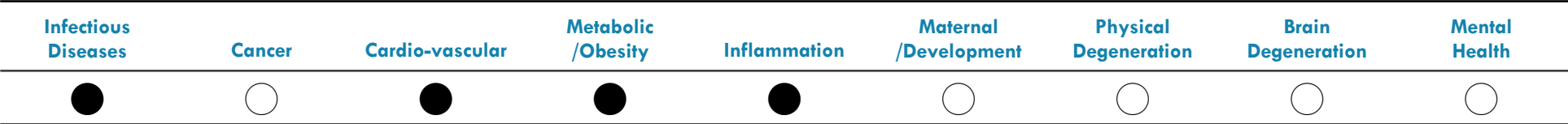


STAGE IV
"Hospital Ready" Medical Products
Suited to Specific Conditions

The oat extract platform delivers the specific health benefits of oats to consumers and patients in concentrated form

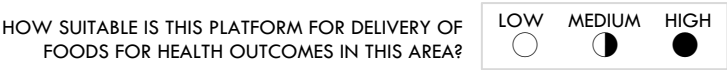
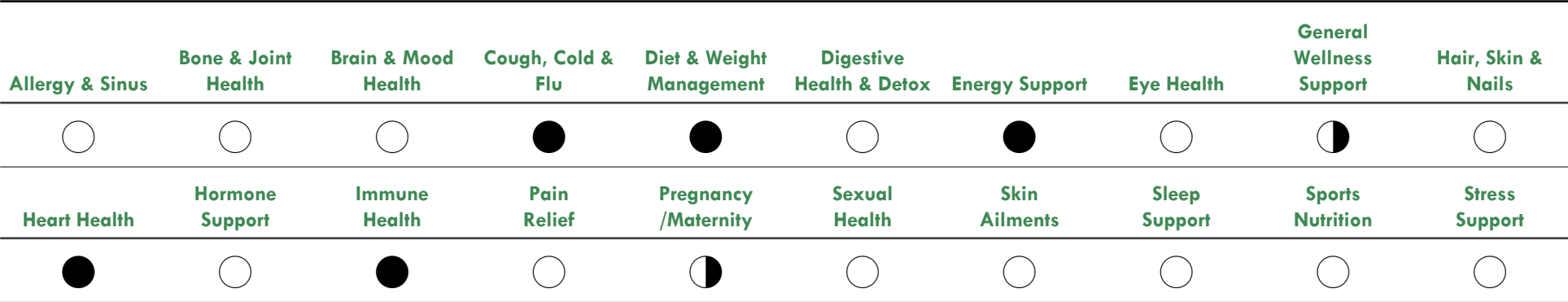
MEDICAL

WHICH BROAD CATEGORIES (FROM A MEDICAL POINT-OF-VIEW) CAN BE TARGETED WITH THIS PLATFORM?



RETAIL

WHICH BROAD CATEGORIES (FROM A RETAIL POINT-OF-VIEW) CAN BE TARGETED WITH THIS PLATFORM?

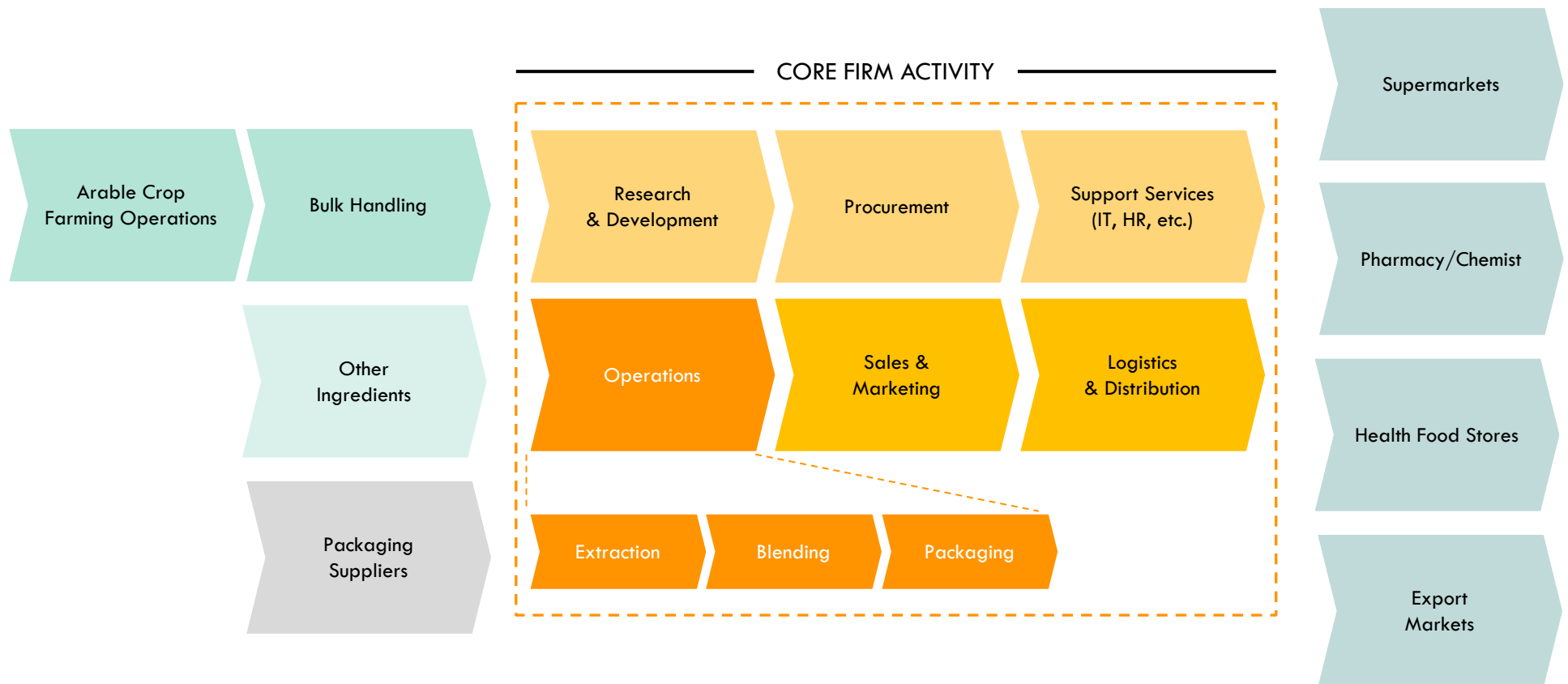


Western Australian oat extracts are well positioned to execute on and deliver key trends

CORIOLIS FOOD & BEVERAGE TRENDScopeSM

TIME SAVING	FAST	EASY OPEN	SOCIAL	INSTA READY	PICTURESQUE
HASSLE FREE	SIMPLIFIES	EASY	REWARDS	FARM TOUR	FUN
LOW EFFORT	CONVENIENCE	RANGE	CONNECTIONS	INVOLVEMENT	ARTISAN
SOLUTIONS	READY TO COOK	READY TO EAT/USE	HAND CRAFTED	SMALL BATCH	SENSORY
MICROWAVE	REUSABLE	STORY TELLING	AUTHENTIC	CELLAR DOOR	AGED
SUPERIOR	RICH FLAVOUR	SPECIAL EDITION	TRADITIONAL	RESPONSIBLE	FAMILY OWNED
DISTINCT	PROMOTED	SPONSOR	CERTIFIED	HEIRLOOM	FAIR TRADE
ENDORSED	PREMIUM	ADVERTISED	PROTECTED	STEWARDSHIP	TRADE AID
FAMOUS	AWARD WINNING	"ESTATE" GROWN	LIFE CYCLE	TRACEABLE	ETHICAL
QUALITY	EXPENSIVE	RARE/UNIQUE	SOCIALLY AWARE	INDIGENOUS	FREE RANGE
LOW FAT	LOW CARB	TRUSTED	LOCAL	NATIVE CROPS	GRASS FED
PROTEIN	FREE FROM	NO HORMONES	LOW INPUT	CARBON ZERO	EARTH FRIENDLY
NUTRACEUTICAL	HEALTH	NATURAL	ECOLOGICAL	SUSTAINABLE	LOW WATER USE
THERAPEUTIC	CHEMICAL FREE	PLANT BASED	BEE FRIENDLY	NITROGEN FIXING	ORGANIC
MEDICINAL	WELLNESS	PALEO	RENEWABLE	BIODYNAMIC	REGENERATIVE

How would the value chain be organised?



Who are the high potential commercial partners for this opportunity?

				
Firm	PEPSICO/QUAKER	UNIGRAIN	CBH GROUP	BUNGE
Relevant product categories	Beverages Cereals Muesli bars Other foods	Processed oats Oat bran & flour Breakfast cereal	Bulk handling Milling	Bulk handling

				
Firm	ANCHOR FOODS	WIDE OPEN AGRICULTURE	SMALL/MED LOCALS	THE CHIA CO
Relevant product categories	Milling Blending Processed foods	Oat milk Meats Produce Other products	Breakfast cereal Other oat based foods	Bulk seeds Refrigerated snacks Processed foods

Who are the other key stakeholders?



RESEARCH ORGANISATIONS

- Multiple research organisations are researching and/or supporting research into oats



PRODUCER ORGANISATIONS

- WA has strong farmer organisations supporting arable crops at multiple levels



UNIVERSITIES

- WA has a range of leading universities, including four medical schools (UWA, UND, CU & ECU)
- Multiple research streams underway that touch on parts of this opportunity



GOVERNMENT

- A wide range of state agencies touch on this opportunity

Where is investment required?

1

INVESTING IN **NEW PRODUCT DEVELOPMENT**

- While clear global models exist, products are conceptual at this point
- Significant work needs to be undertaken to the initial finished consumer offer

2

INVESTING IN **IMPROVING THE GENETICS** OF OATS FOR BETTER HEALTH OUTCOMES

- Australia has world-class oat breeding capabilities
- More emphasis needs to be placed on developing IP controlled oat varieties with measurably different health properties

3

INVESTING IN REQUIRED **PROCESSING & PACKAGING EQUIPMENT**

- Unclear current capability and capacity for in-region beta-glucan extraction
- Depending on the coalition that develops around this concept, additional equipment will likely be required

What oat extract products emerged from Stage I of the screen?

*OAT FIBRE
FOR GUT HEALTH*

*OAT NOODLES HIGH
IN BETA-GLUCANS TO
REDUCE CHOLESTEROL*

*OAT CEREAL TO
INCREASE SATIETY
AND REDUCE APPETITE*

*OAT SNACKS TO
INCREASE SATIETY
AND REDUCE APPETITE*

*FERMENTED OAT
BEVERAGE FOR CELIAC
DISEASE & LOWERING
CHOLESTEROL*

*OAT BETA GLUCANS IN
DOG TREATS FOR
JOINT HEALTH*

OAT FIBRE FOR GUT HEALTH

WHAT IS THE CONCEPT?

Oat husk powder to add to meals, smoothies, baking to increase insoluble fibre targeting gut health

GIVE ME THE ELEVATOR PITCH

Gluten-free insoluble fibre from oat husks helps maintain a healthy intestine. Gut health is vital to ensure optimal digestion of nutrients and a healthy balance of gut bacteria. This is a growing global concern.

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?	\$12.50/500g (\$10-15/500g) \$25/kg (\$20-30/kg)
WHAT SORT OF PACK SIZE?	200g, 500g, 1kg
WHAT PRODUCT FORM?	Dry Powder
WHAT FORM OF PACKAGING?	Plastic, sealed or cardboard/paper seal
WHAT MARGINS WILL THE RETAILER TAKE?	45% (40-50%) of retail selling price
WHAT SORT OF PROFITABILITY?	EBITDA \$1.50/unit (\$0.90-2.10/unit) @12% of retail price (7-17%)

WHAT ARE THE KEY CHANNELS?

Supermarkets	✓✓
Pharmacy/Chemist	✓✓✓✓
Online	✓✓✓
Direct sales	✓✓
Duty Free	-
Daigou	-

WHO IS THE COMPETITION?

National brands
Smaller, regional firms

WHAT ARE THE POTENTIAL INGREDIENTS?

Oat fibre, flavours

WHAT COULD IT LOOK LIKE?



OAT FIBRE FOR GUT HEALTH

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD	
Supports healthy gut (bacteria) Heart Disease High Cholesterol Diabetes (lowers blood sugar)		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO	SUPPLY CHAIN
	The Nutritionist Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Does or could grow in WA <div></div>
	The Doctor Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Strength in inputs <div></div>
WHAT DO THE EXPERTS SAY?		WHAT'S IN IT FOR WESTERN AUSTRALIA?					Capabilities across the chain <div></div>
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?		HOW CAN WA FARMERS PARTICIPATE?					Clear partners <div></div>
<ul style="list-style-type: none">Husks are insoluble fibre high in lignin, cellulose and hemicellulose, they help keep the bowel movements regularBacteria help digest the fiber which produces healthy ingredients for the colon such as short chain fatty acids		<ul style="list-style-type: none">WA farmers grow more oatsProcess the oats to utilise the husks as fibre					PRIMARY SECTOR
WHAT DOES THE NUTRITIONIST SAY?		HOW CAN WA SCIENTISTS PARTICIPATE?					Mechanically harvested <div></div>
<p>Oat fiber is an insoluble fiber made from grinding the oat hull or husk, which is the shell that surrounds the oat groat (or kernel).</p> <p>Fibre is good for digestion, weight management, lowering cholesterol, and helping to control blood sugar levels.</p>		<ul style="list-style-type: none">Research into benefits of oat fibreDevelop high beta-glucan oat varietiesResearch oats specific role in gut health					High performance genetics available <div></div>
WHAT DOES THE DOCTOR SAY?		WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					Proven, scalable production model <div></div>
<p>Fiber plays a major role in digestive health. Fiber is the fuel the colon cells use to keep them healthy. Fiber also helps to keep the digestive tract flowing, by keeping your bowel movements soft and regular.</p>		WA grown ingredients Utilise byproduct from existing oat processing Potential to develop IP controlled varieties Trusted source/Safe supply					Required skills for success <div></div>
PRODUCT CHARACTERISTICS							
Drought tolerant <div></div>							
Low input production <div></div>							
Wide range of uses <div></div>							
Full product utilisation <div></div>							
Indigenous knowledge <div></div>							
OVERALL <div></div>							

Source: Company websites, articles, publications, reports; Coriolis research and analysis

OAT NOODLES HIGH IN BETA-GLUCANS TO REDUCE CHOLESTEROL

WHAT IS THE CONCEPT?

Oat noodles to increase dietary fibre and reduce cholesterol, prevent diabetes and improve heart health

GIVE ME THE ELEVATOR PITCH

Oats are source of soluble dietary fiber (beta-glucan is one form), important to support good health (reducing cholesterol, maintaining a healthy heart and controlling blood sugar levels, etc.). WA has the skills and capabilities to succeed in this sector

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?	\$1/100g (\$0.5-1.50/100g) \$10/kg (\$8-12/kg)
WHAT SORT OF PACK SIZE?	80g, 100g, 500g
WHAT PRODUCT FORM?	Pasta (plain or flavourings)
WHAT FORM OF PACKAGING?	Plastic soft sealed
WHAT MARGINS WILL THE RETAILER TAKE?	35% (30-40%) of retail selling price
WHAT SORT OF PROFITABILITY?	EBITDA \$0.10/unit (\$0.05-0.15/unit) @10% of retail price (5-15%)

WHAT ARE THE KEY CHANNELS?

Supermarkets	✓✓✓✓
Pharmacy/Chemist	✓✓✓✓
Online	✓✓✓✓
Direct sales	✓✓
Duty Free	-
Daigou	-

WHO IS THE COMPETITON?

Quaker, Nestle
National, regional firms

WHAT ARE THE POTENTIAL INGREDIENTS?

Oats, (plain or flavourings)

WHAT COULD IT LOOK LIKE?



OAT NOODLES HIGH IN BETA-GLUCANS TO REDUCE CHOLESTEROL

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD	
High cholesterol (LDL) Heart Disease Blood sugar spikes Diabetes		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO	SUPPLY CHAIN
	The Nutritionist Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Does or could grow in WA <div></div>
	The Doctor Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Strength in inputs <div></div>
WHAT DO THE EXPERTS SAY?		WHAT'S IN IT FOR WESTERN AUSTRALIA?					Capabilities across the chain <div></div>
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?		HOW CAN WA FARMERS PARTICIPATE?					Clear partners <div></div>
<ul style="list-style-type: none">Oats are a naturally rich source of beta-glucan.Role of oat beta-glucan, and specifically its viscosity in lowering blood cholesterol levels, it slows food transit in the intestine		<ul style="list-style-type: none">Grow high beta-glucan oat varieties					PRIMARY SECTOR
WHAT DOES THE NUTRITIONIST SAY?		HOW CAN WA SCIENTISTS PARTICIPATE?					Mechanically harvested <div></div>
Beta Glucan is FDA approved as a heart healthy label; it's known to reduce cholesterol		<ul style="list-style-type: none">Develop high beta-glucan oat varieties for use in noodlesDevelop fractionating process to increase concentrations of beta glucans to use as oat ingredientSupport New Product Development for new and novel foods					High performance genetics available <div></div>
		WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					Proven, scalable production model <div></div>
WHAT DOES THE DOCTOR SAY?		WA grown ingredients Potential to develop IP controlled oat varieties Trusted source/Safe supply					Required skills for success <div></div>
Eating a diet high in beta glucan is shown to reduce cholesterol; taking supplements or fortified foods is also an option.							PRODUCT CHARACTERISTICS
							Drought tolerant <div></div>
							Low input production <div></div>
							Wide range of uses <div></div>
							Full product utilisation <div></div>
							Indigenous knowledge <div></div>
							OVERALL <div></div>

Source: Company websites, articles, publications, reports; Coriolis research and analysis

OAT CEREAL TO INCREASE SATIETY AND REDUCE APPETITE

WHAT IS THE CONCEPT?

Oats which are high in beta-glucan are shown to slow digestion and help control appetite, reducing overeating

GIVE ME THE ELEVATOR PITCH

Obesity and diabetes are a major health issue in Australia and Asia. A diet high in oats can assist with controlling appetite and reducing the need for eating more regularly. WA has the skills and capabilities to grow oats and manufacture oats products

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?	\$8.50/450g (\$7-10/450g) \$19/kg (\$15-23/kg)
WHAT SORT OF PACK SIZE?	300g, 450g
WHAT PRODUCT FORM?	Breakfast cereal
WHAT FORM OF PACKAGING?	Plastic, sealed or plastic and cardboard seal
WHAT MARGINS WILL THE RETAILER TAKE?	35% (30-40%) of retail selling price
WHAT SORT OF PROFITABILITY?	EBITDA \$0.85/unit (\$0.40-1.30/unit) @10% of retail price (5-15%)

WHAT ARE THE KEY CHANNELS?

Supermarkets	✓✓✓✓
Pharmacy/Chemist	✓
Online	✓✓
Direct sales	-
Duty Free	-
Daigou	-

WHO IS THE COMPETITON?

Bob's Red Mill
Quaker
Harraways
Uncle Toby's
Other national and regional firms

WHAT ARE THE POTENTIAL INGREDIENTS?

Oats, plant sterols, flavours, natural sweeteners

WHAT COULD IT LOOK LIKE?

Replace with "proven to keep you feeling full longer vs other cereals"



OAT CEREAL TO INCREASE SATIETY AND REDUCE APPETITE

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD	
Obesity Diabetes		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO	SUPPLY CHAIN
	The Nutritionist Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Does or could grow in WA <div></div>
	The Doctor Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Strength in inputs <div></div>
WHAT DO THE EXPERTS SAY?		WHAT'S IN IT FOR WESTERN AUSTRALIA?					Capabilities across the chain <div></div>
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?		HOW CAN WA FARMERS PARTICIPATE?					Clear partners <div></div>
<ul style="list-style-type: none">The physicochemical properties of soluble oat fiber (β-glucan) affect viscosity-dependent mechanisms that influence satiety.		<ul style="list-style-type: none">Grow high beta-glucan oat varieties					PRIMARY SECTOR
WHAT DOES THE NUTRITIONIST SAY?		HOW CAN WA SCIENTISTS PARTICIPATE?					Mechanically harvested <div></div>
<p>If you are feeling full for longer you are more likely to resist environmental cues to eat. While oats might keep you feeling full longer, and be part of an overall healthy diet, diabetes and obesity require a full assessment of individual diets.</p>		<ul style="list-style-type: none">Develop high beta-glucan oat varieties for breakfast cereal and ingredients for smoothiesDevelop fractionating process to increase concentrations of beta glucans to use as oat ingredient					High performance genetics available <div></div>
WHAT DOES THE DOCTOR SAY?		WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					Proven, scalable production model <div></div>
<p>Oats contain more soluble fibers than any other grain, resulting in slower digestion and an extended sensation of fullness.</p>		<p>WA grown ingredients Potential to develop IP controlled species Trusted source/Safe supply</p>					Required skills for success <div></div>
							PRODUCT CHARACTERISTICS
							Drought tolerant <div></div>
							Low input production <div></div>
							Wide range of uses <div></div>
							Full product utilisation <div></div>
							Indigenous knowledge <div></div>
							OVERALL <div></div>

Source: Company websites, articles, publications, reports; Coriolis research and analysis

OAT SNACKS TO INCREASE SATIETY AND REDUCE APPETITE

WHAT IS THE CONCEPT?

Oats which are high in beta-glucan are shown to slow digestion and help control appetite, reducing overeating

GIVE ME THE ELEVATOR PITCH

Obesity and diabetes are a major health issue in Australia and Asia. A diet high in oats can assist with controlling appetite and reducing the need for eating more regularly. Bars are a snack or meal replacement. WA has the skills and capabilities to grow oats and manufacture oats products

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?	\$4/each (\$3-5/each) \$100/kg (\$80-120/kg)
WHAT SORT OF PACK SIZE?	50g, 60g, 70g single serve/multipack
WHAT PRODUCT FORM?	Bar
WHAT FORM OF PACKAGING?	Plastic, sealed or plastic and cardboard seal
WHAT MARGINS WILL THE RETAILER TAKE?	35% (30-40%) of retail selling price
WHAT SORT OF PROFITABILITY?	EBITDA \$0.40/unit (\$0.20-0.60/unit) @10% of retail price (5-15%)

WHAT ARE THE KEY CHANNELS?

Supermarkets	✓✓✓✓
Pharmacy/Chemist	✓
Online	✓✓
Direct sales	-
Duty Free	-
Daigou	-

WHO IS THE COMPETITION?

Aussie Bodies
Horley's
Cliff
Atkins
Other national and regional firms

WHAT ARE THE POTENTIAL INGREDIENTS?

Oats, plant sterols, kakadu plum, jarrah honey and other natural sweeteners, carob, chocolate, nuts, other flavours

WHAT COULD IT LOOK LIKE?



OAT SNACKS TO INCREASE SATIETY AND REDUCE APPETITE

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD	
Obesity Diabetes		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO	
	The Nutritionist Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	
	The Doctor Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					SUPPLY CHAIN	
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?						Does or could grow in WA
<ul style="list-style-type: none">The physicochemical properties of soluble oat fiber (β-glucan) affect viscosity-dependent mechanisms that influence satiety.	HOW CAN WA SCIENTISTS PARTICIPATE?						Strength in inputs
WHAT DOES THE NUTRITIONIST SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					Capabilities across the chain	
<p>If you are feeling full for longer you are more likely to resist environmental cues to eat. While oats might keep you feeling full longer, and be part of an overall healthy diet, diabetes and obesity require a full assessment of individual diets.</p>	WA grown ingredients Potential to develop IP controlled species Trusted source/Safe supply					Clear partners	
WHAT DOES THE DOCTOR SAY?						PRIMARY SECTOR	
						Mechanically harvested	
						High performance genetics available	
						Proven, scalable production model	
						Required skills for success	
						PRODUCT CHARACTERISTICS	
						Drought tolerant	
						Low input production	
						Wide range of uses	
						Full product utilisation	
						Indigenous knowledge	
						OVERALL	

FERMENTED OAT BEVERAGE FOR CELIAC DISEASE & LOWERING CHOLESTEROL

WHAT IS THE CONCEPT?	Probiotic oat-based beverage for celiacs and to lower cholesterol		WHAT COULD IT LOOK LIKE?
GIVE ME THE ELEVATOR PITCH	Celiacs are gluten intolerant, not only is fermented oats suitable for them, but with it's high levels of soluble fibre (beta-glucan) prebiotic it stimulates the growth of bifidobacteria		
WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?		WHAT ARE THE KEY CHANNELS?	
WHAT SORT OF PRICING?	\$6/500ml (\$5-7/500ml) \$12/kg (\$10-14/kg)	Supermarkets	✓✓
WHAT SORT OF PACK SIZE?	350ml, 500ml, 1L	Pharmacy/Chemist	✓✓✓✓
WHAT PRODUCT FORM?	Drink	Online	✓✓
WHAT FORM OF PACKAGING?	Plastic, Glass, Tetrapak, Can	Direct sales	-
WHAT MARGINS WILL THE RETAILER TAKE?	40% (35-45%) of retail selling price	Duty Free	-
WHAT SORT OF PROFITABILITY?	EBITDA \$0.90/unit (\$0.60-1.20/unit) @15% of retail price (10-20%)	Daigou	-
WHAT ARE THE POTENTIAL INGREDIENTS?		WHO IS THE COMPETITON?	
		Quaker Danone Coca-Cola Other smaller, regional firms	





FERMENTED OAT BEVERAGE FOR CELIAC DISEASE & LOWERING CHOLESTEROL

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD
Celiac disease Lowering cholesterol Heart disease		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO
	The Nutritionist Says	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	The Doctor Says	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					SUPPLY CHAIN
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?					Does or could grow in WA <input checked="" type="radio"/>
<ul style="list-style-type: none"> Oats contains no gluten Oats lowers cholesterol, with it's high levels of soluble fibre (beta-glucan) prebiotic, it stimulates the growth of bifidobacteria. Soluble fibre binds cholesterol-containing bile acids produced in the liver and speeding their exit from the body 	<ul style="list-style-type: none"> Grow oats to supply processing Dairy industry provide probiotics as ingredient 					Strength in inputs <input checked="" type="radio"/>
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					Capabilities across the chain <input type="radio"/>
Fermentation of oat 'slurry' makes a yoghurt-type product that can be used by patients with celiac disease. There is also the dietary fiber of oats has 55% soluble fibre and 45% insoluble fibre	<ul style="list-style-type: none"> On-going research into role and type of probiotics for best outcomes Researching nutritional values of formulations Type of oats providing best results 					Clear partners <input type="radio"/>
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					PRIMARY SECTOR
A high fibre diet and fermented products are good for a range of diseases. Oats are suitable as part of a celiac diet	WA grown ingredients Potential to develop IP controlled process & product Trusted source/Safe supply					Mechanically harvested <input checked="" type="radio"/>
						High performance genetics available <input checked="" type="radio"/>
						Proven, scalable production model <input checked="" type="radio"/>
						Required skills for success <input checked="" type="radio"/>
						PRODUCT CHARACTERISTICS
						Drought tolerant <input type="radio"/>
						Low input production <input type="radio"/>
						Wide range of uses <input checked="" type="radio"/>
						Full product utilisation <input checked="" type="radio"/>
						Indigenous knowledge <input type="radio"/>
						OVERALL <input checked="" type="radio"/>

OAT BETA-GLUCANS IN DOG TREATS FOR JOINT HEALTH

WHAT IS THE CONCEPT?	Oat beta-glucans and other supplements for aging dogs		
GIVE ME THE ELEVATOR PITCH	Dogs that have trouble running, jumping, climbing stairs or just getting up from the floor can benefit from supplement for joint health.		
WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?		WHAT ARE THE KEY CHANNELS?	
WHAT SORT OF PRICING?	\$25/340g (\$-/) \$-/kg	Supermarkets	✓✓
WHAT SORT OF PACK SIZE?	340g	Pharmacy/Chemist	-
WHAT PRODUCT FORM?	Chewable treat	Online	✓✓
WHAT FORM OF PACKAGING?	Plastic coated pouch	Direct sales	-
WHAT MARGINS WILL THE RETAILER TAKE?	35% (30-40%) of retail selling price	Duty Free	-
WHAT SORT OF PROFITABILITY?	EBITDA \$2.50/bag (\$1-4/bag) @% of retail price	Pet food store	✓✓✓✓
WHAT ARE THE POTENTIAL INGREDIENTS?		WHO IS THE COMPETITON?	
		Smaller, regional firms	
		Glucosamine Hydrochloride, Sodium Chondroitin Sulfate, Methylsulfonylmethane, Fish oil (preserved with mixed tocopherols), glycerin, green tea extract, mixed tocopherols (preservative), natural flavor, rosemary extract, silicon dioxide, starch, vegetable oil, and yeast extract.	

WHAT COULD IT LOOK LIKE?

OAT BETA-GLUCANS IN DOG TREATS FOR JOINT HEALTH

WHAT IS IT TREATING?		HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD		
Joint health			SOLID	PROBABLE	MAYBE	MODEST	LOW/NO	SUPPLY CHAIN	
		The Nutritionist Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Does or could grow in WA	<div></div>
		The Doctor Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Strength in inputs	<div></div>
WHAT DO THE EXPERTS SAY?		WHAT'S IN IT FOR WESTERN AUSTRALIA?					Capabilities across the chain		
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?		HOW CAN WA FARMERS PARTICIPATE?					Clear partners		
• “Beta glucan is the topic of over 20,000 scientific articles and has been shown to boost key immune cells in the body”		• Production of oats • Production of a wide range of potential ingredients					PRIMARY SECTOR		
WHAT DOES THE NUTRITIONIST SAY?		HOW CAN WA SCIENTISTS PARTICIPATE?					Mechanically harvested		
Joint conditions are relatively straight forward. It either works for the patient (dog or otherwise) or not.		• Further research on oat beta-glucans • Further research on joint health and mobility					High performance genetics available		
WHAT DOES THE DOCTOR SAY?		WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					Proven, scalable production model		
It is difficult to ask the dog, so you'd need to observe for changes in behaviour.		WA grown ingredients Potential to develop IP controlled varieties Trusted source/Safe supply					Required skills for success		
							PRODUCT CHARACTERISTICS		
							Drought tolerant		
							Low input production		
							Wide range of uses		
							Full product utilisation		
							Indigenous knowledge		
							OVERALL		

Source: Company websites, articles, publications, reports; Coriolis research and analysis

TABLE OF CONTENTS

page 7	page 17	page 54	page 75	page 105	page 133
<i>Context, Markets and Process</i>	<i>Conditions, Concepts and Challenges</i>	<i>Health Focused Dairy/Alternative Dairy</i>	<i>Oat Extracts</i>	<i>Plant Proteins</i>	<i>Medical/Health Focused Ready Meals</i>
page 161	page 205	page 233	page 262	page 337	
<i>Botanical Waste Streams</i>	<i>Meat Extracts</i>	<i>Bushcrop Extracts</i>	<i>Other Opportunities</i>	<i>Appendix I Markets & Conditions Details</i>	

Why plant protein? Because it is seen by consumers as a solution to a wide range of health challenges

“Protein is an essential macronutrient for muscle building, tissue repair, and enzyme and hormone production. The use of protein powder can also aid weight loss and help people strengthen their muscles... Increasing preference towards vegan diet due to the risks of cardiovascular diseases and type 2 diabetes associated with the consumption of meat products is expected to propel the market growth over the next few years.”



“Key factors that are driving the protein powder market include the rise in awareness about the benefits of protein, such as expanded vitality, streamlined weight administration. Other factors which are estimated to drive the global protein powder market are the increasing standard of living of the middle class population and the rise in the disposable income. Other than sports sector, protein powder has huge opportunity in the non-sports sector, which in turn is anticipated to propel the protein powder market... Moreover, the high rate of obesity among children and adolescents is fuelling the demand”



“The increasing instances of obesity and related diseases are making consumers more health conscious. This is compelling them to seek food and beverage products that are natural and low in fat and calories... The trend of health and wellness is gaining popularity, especially among adults. As a result, the number of consumers indulging in fitness activities is increasing globally. Consumers are ready to pay premium prices for products with various functional benefits and low fat content. Thus, with the growing demand for healthy food and beverages, the market for natural protein powder is expected to showcase a positive outlook during the forecast period.”



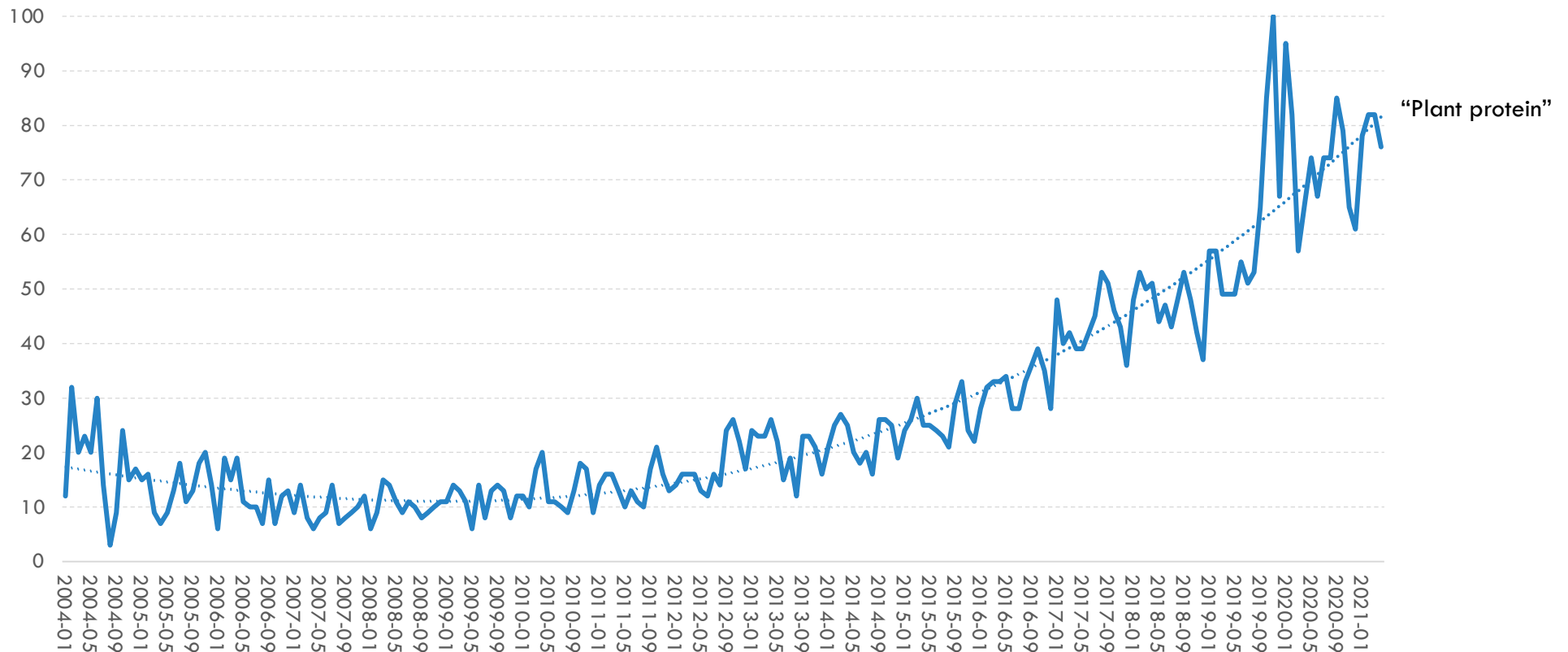
“Increasing busy lifestyle has been leading to the growing consumption... In addition, rising obesity concerns along with increased preference for protein-rich products to maintain health has been a key factor augmenting the product demand. The rising number of fitness enthusiasts and gym subscriptions, especially in emerging regions, such as Asia Pacific, is leading to a higher demand for protein powder to build muscles.”



Global interest in plant protein is growing

17Y WORLDWIDE GOOGLE TRENDS SEARCH INTEREST INDEX OVER TIME*

Relative index; 2004-2021



NOTE: Numbers represent search interest relative to the highest point on the chart for the given region and time. A value of 100 is the peak popularity for the term. A value of 50 means that the term is half as popular. Source: Google Trends; Coriolis analysis

Growing awareness of the health benefits of plant protein are translating into growing global demand for plant protein powders and products

“Consumer interest to boost protein intake is increasing with more attention being paid to the specific types of protein being consumed. The desire for clean labels, ease of digestion, the need or desire to avoid allergens, compatibility with vegetarian and vegan lifestyles, and concerns about sustainability among the general population are putting the spotlight on plant proteins. Consumer notions of what constitutes a good protein source are expanding to include a wider variety of plant protein ingredients.”



“As consumers sample the growing array of plant-based foods and beverages, formulators are balancing a unique mix of benefits and challenges presented by these alternative proteins. Taste, texture, nutrition, and functionality issues crop up with many plant-based protein ingredients, from soy, the market leader, to pea and other pulses such as chickpea, lentil, and fava bean, to grains like wheat, quinoa, and barley.”



“Plant proteins are experiencing their time in the limelight, with brands launching plant-based protein products in retail and foodservice chains launching plant-protein menu innovations. Consumers—including meat eaters and dairy lovers worldwide—are reciprocating with appeal and engagement, snapping up new releases such as meat-like plant protein burgers, plant protein lattes and plant-based protein meal kits.”

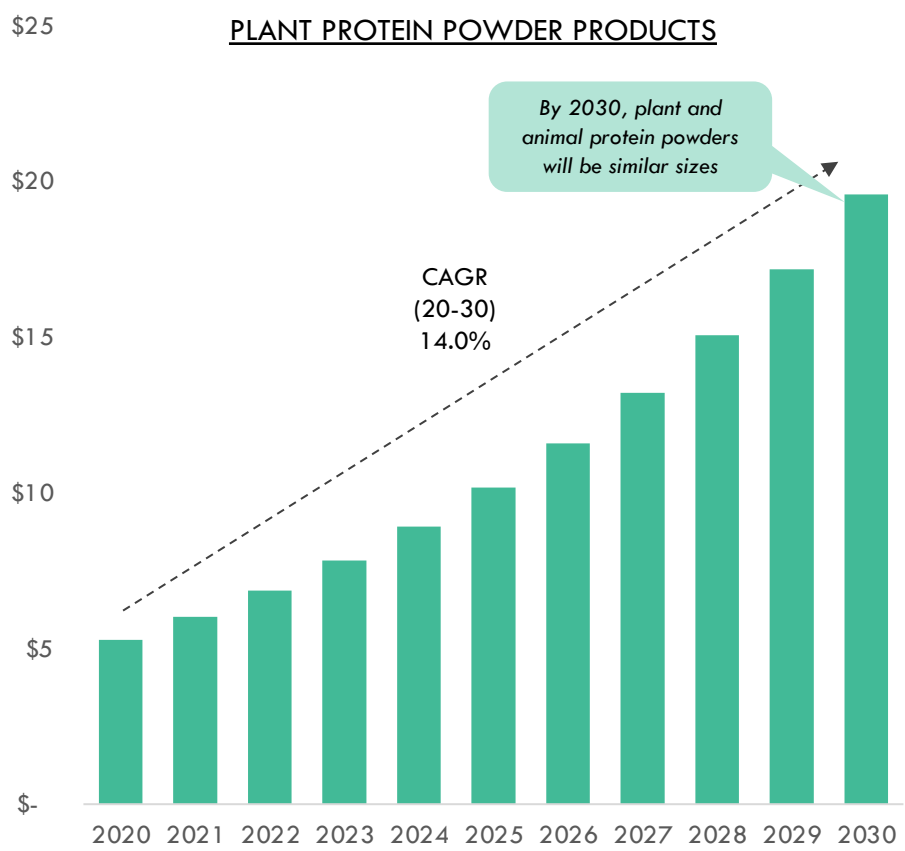
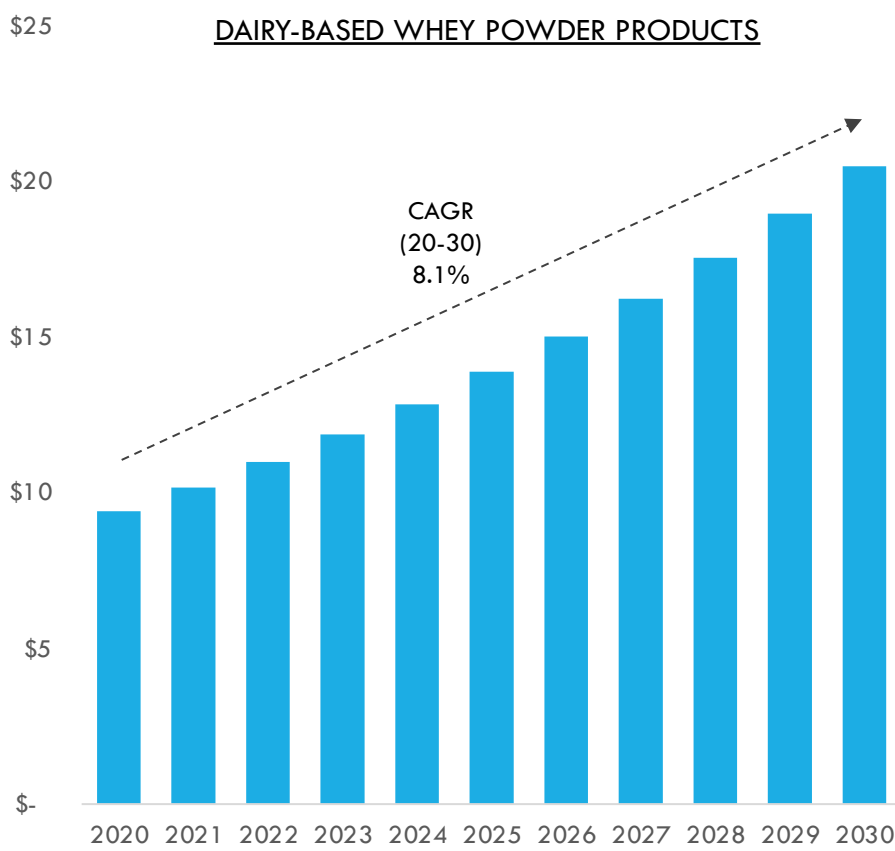


“The sale of plant-based foods has significantly increased amidst the outbreak of the COVID-19 pandemic... U.S. retail plant-based foods sale was 35% higher than total retail food amid the panic buying period around March & April 2020. The pandemic has considerably transformed consumer buying patterns, with a steady shift being witnessed toward health-improving products. People are buying supplements owing to their healthier & safer properties as compared to their animal-based counterparts... The growing concerns surrounding food safety amidst the pandemic are expected to boost the demand for these supplements in the upcoming years.”

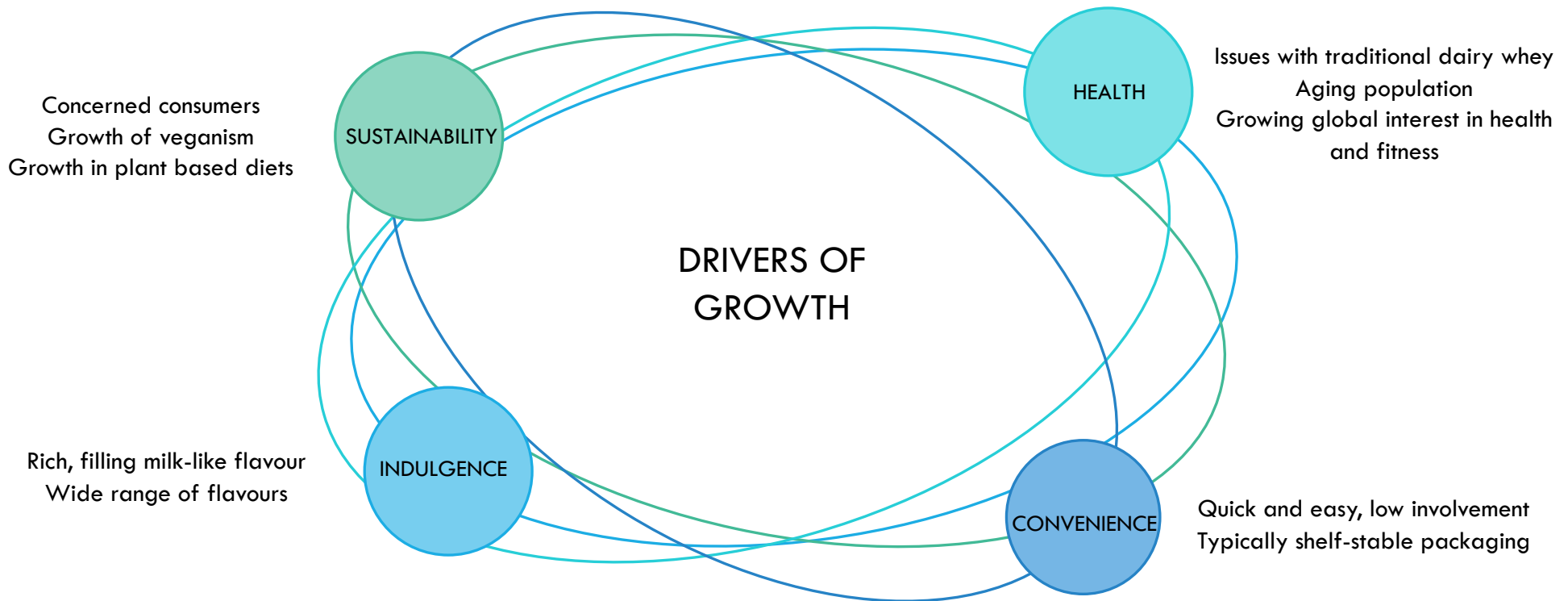


Both dairy-based whey powders and plant based protein powders are forecast to grow strongly over the next decade

GLOBAL PROTEIN POWDER MARKET VALUE
US\$, b; 2020-2030



Global growth is coming from solid, long term drivers of growth



How could we do it?

STRAWMAN FOR DISCUSSION

VISION:

Western Australia leverages existing capabilities in arable crops to build a strong plant protein sector targeting health leading to a large processing industry supplying a range of markets

1

Conduct stocktake to assess existing WA capabilities in (1) plant protein extraction and (2) dry fill packaging

Understand what “pieces of the jigsaw” need to be put in place in Western Australia

Create a “coalition of the willing” to take to opportunity forward

2

Assess best plant protein plant(s) available in WA at scale

Develop a relatively simple initial product leveraging in-place equipment to “get the ball rolling”

Identify a science and research agenda to develop more differentiated products

3

Build market, initially targeting direct sales, health food stores and sports nutrition specialists

Expand into pharmacy/chemist channels; targeted approach to Asia initially

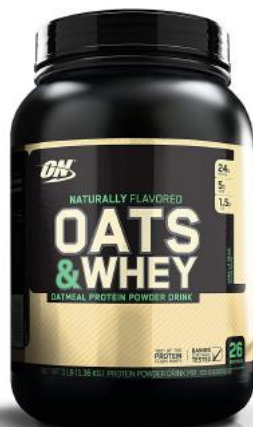
Ensure efficient supply chains into these key markets

What sort of products are we suggesting?

PLANT-BASED PROTEIN POWDERS



Lupin



Oats



Pea



Hemp



Pumpkin
Seed



Barley
Grass



Almond



Other

What is the development pathway?

Higher complexity
More science required
Greater capabilities needed



STAGE I
Simple
protein powders



STAGE II
Complex, functional
protein powders



STAGE III
RTD plant
protein shakes

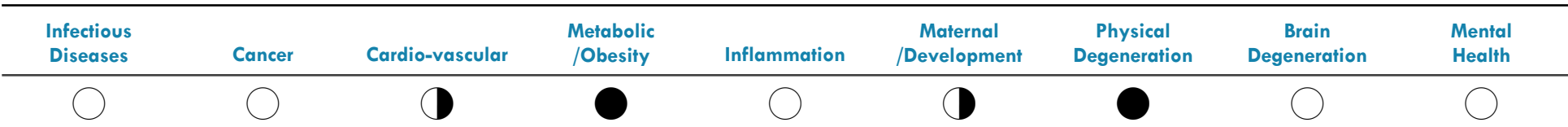


STAGE IV
Plant based infant formula and
similar products

The health-focused plant protein platform delivers nutrition to consumers

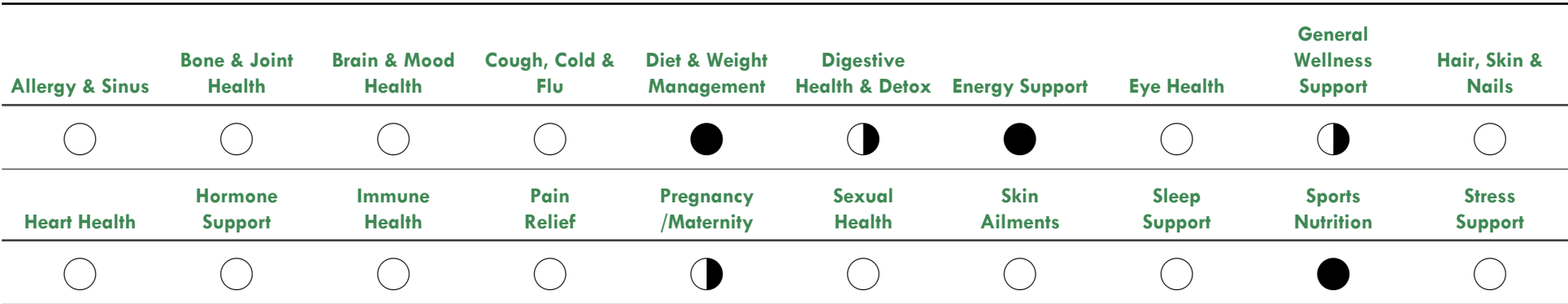
MEDICAL

WHICH BROAD CATEGORIES (FROM A MEDICAL POINT-OF-VIEW) CAN BE TARGETED WITH THIS PLATFORM?



RETAIL

WHICH BROAD CATEGORIES (FROM A RETAIL POINT-OF-VIEW) CAN BE TARGETED WITH THIS PLATFORM?



HOW SUITABLE IS THIS PLATFORM FOR DELIVERY OF FOODS FOR HEALTH OUTCOMES IN THIS AREA?

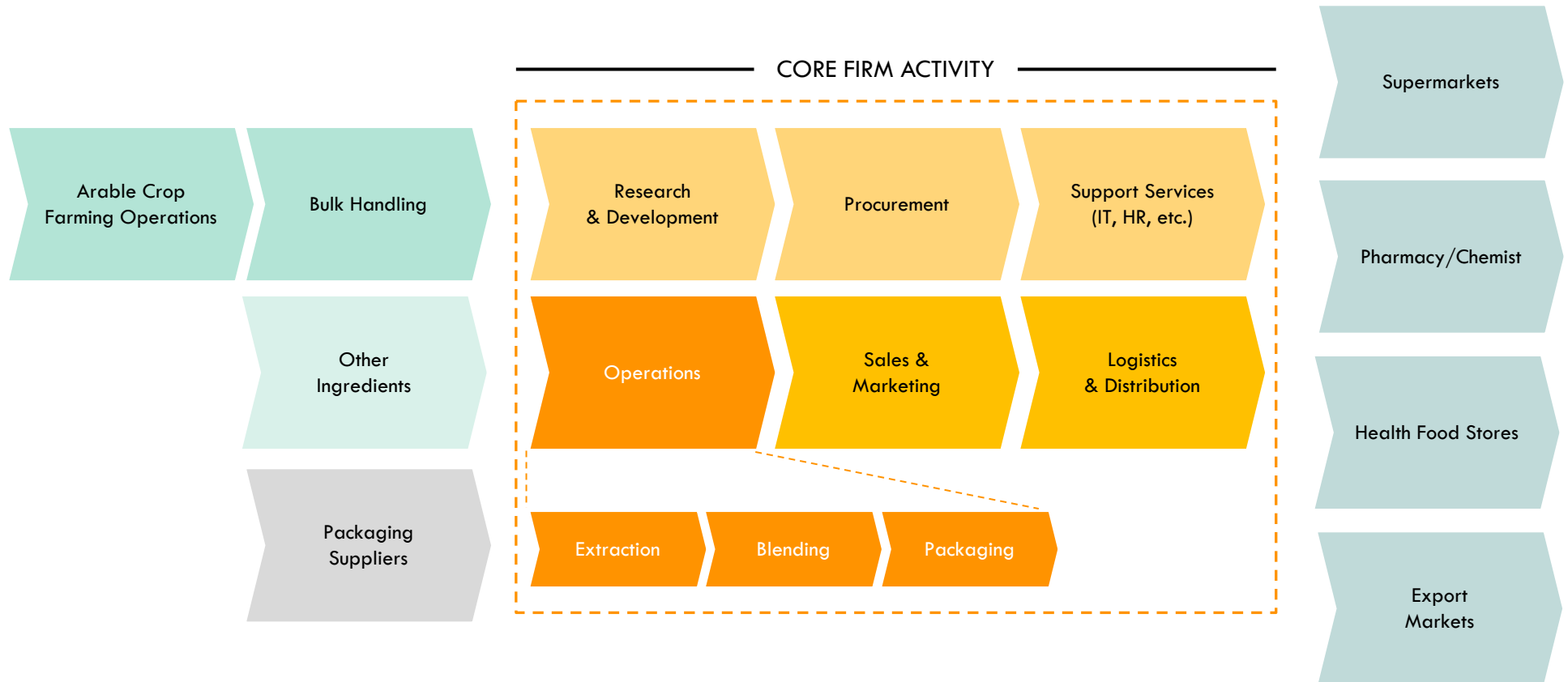


Western Australian plant protein can deliver on a product in line with key trends





CORIOLIS FOOD & BEVERAGE TRENDScopeSM





TIME SAVING	FAST	EASY OPEN	SOCIAL	INSTA READY	PICTURESQUE
HASSLE FREE	SIMPLIFIES	EASY	REWARDS	FARM TOUR	FUN
LOW EFFORT	CONVENIENCE	RANGE	CONNECTIONS	INVOLVEMENT	ARTISAN
SOLUTIONS	READY TO COOK	READY TO EAT/USE	HAND CRAFTED	SMALL BATCH	SENSORY
MICROWAVE	REUSABLE	STORY TELLING	AUTHENTIC	CELLAR DOOR	AGED
SUPERIOR	RICH FLAVOUR	SPECIAL EDITION	TRADITIONAL	RESPONSIBLE	FAMILY OWNED
DISTINCT	PROMOTED	SPONSOR	CERTIFIED	HEIRLOOM	FAIR TRADE
ENDORSED	PREMIUM	ADVERTISED	PROTECTED	STEWARDSHIP	TRADE AID
FAMOUS	AWARD WINNING	"ESTATE" GROWN	LIFE CYCLE	TRACEABLE	ETHICAL
QUALITY	EXPENSIVE	RARE/UNIQUE	SOCIALLY AWARE	INDIGENOUS	FREE RANGE
LOW FAT	LOW CARB	TRUSTED	LOCAL	NATIVE CROPS	GRASS FED
PROTEIN	FREE FROM	NO HORMONES	LOW INPUT	CARBON ZERO	EARTH FRIENDLY
NUTRACEUTICAL	HEALTH	NATURAL	ECOLOGICAL	SUSTAINABLE	LOW WATER USE
THERAPEUTIC	CHEMICAL FREE	PLANT BASED	BEE FRIENDLY	NITROGEN FIXING	ORGANIC
MEDICINAL	WELLNESS	PALEO	RENEWABLE	BIODYNAMIC	REGENERATIVE

How would the value chain be organised?



Who are the high potential commercial partners for this opportunity?

				
Firm	WIDE OPEN AGRICULTURE	WA LUPINS/PINARIE	ALBA	APP
Relevant product categories	Oat milk Lupin protein Other foods	Dry lupins Lupin-based snacks	Plant based oils Plant extraction	Plant protein powders (based in VIC)

				
Firm	MILNE AGRIGROUP	SUMICH	CBH GOUUP	FARMERS AT SCALE
Relevant product categories	Feeds Poultry	Carrots, onions, celery Carrot juice concentrate Olive oil/leaf extract Almonds	Bulk handling Arable crop processing	Grains Pulses

Who are the other key stakeholders?



Where is investment required?

1

INVESTING IN REQUIRED **PROCESSING** & **PACKAGING** **EQUIPMENT**

- Available dry fill/pack capacity in WA unclear
- Depending on the coalition that develops around this concept, additional equipment will likely be required
- Particularly Omron-type thermoform fill and seal

2

INVESTING IN **NEW PRODUCT** **DEVELOPMENT**

- Initial products can effectively be power in a bag (dry-fill) targeting the smoothie market
- Following this, further work will be required to develop a differentiated consumer offer that stands out in the market

3

INVESTING IN DEMONSTRATING THE **EFFICACY OF** **FUNCTIONAL** **INGREDIENTS**

- Solid evidence is required before specific, targeted health claims can be made
- Alternatively, initial products can leverage proven ingredients with accepted claims

What plant protein products emerged from Stage I of the screen?

*HEMP PROTEIN
SHAKES FOR THE
ELDERLY*

*PEA PROTEIN TO
REDUCE BLOOD
PRESSURE*

*PEA PROTEIN
SMOOTHIE FOR THE
ELDERLY*

*LUPIN
POWDER/FLOUR TO
MANAGE BLOOD
SUGAR LEVELS*

*LUPIN INSOLUBLE
FIBRE & PROTEIN
ISOLATE BEVERAGE*

*OAT POWDER TO
REDUCE
CHOLESTEROL AND
CVD*

HEMP PROTEIN SHAKES FOR THE ELDERLY

WHAT IS THE CONCEPT?

Elderly require high levels of easily digestible protein – hemp protein shakes provide

GIVE ME THE ELEVATOR PITCH

The elderly require high levels of easily digestible protein – hemp protein shakes provide a highly nutritious option (25% calories from protein), and all essential amino acids. WA has the science and agronomy to develop a hemp industry.

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?	\$40/400g (\$30-50/400g) \$100/kg (\$80-120kg)
WHAT SORT OF PACK SIZE?	300g, 400g, 450g
WHAT PRODUCT FORM?	Powder supplement, ingredient
WHAT FORM OF PACKAGING?	Plastic, sealed or tin sealed and cardboard seal
WHAT MARGINS WILL THE RETAILER TAKE?	45% (40-50%) of retail selling price
WHAT SORT OF PROFITABILITY?	EBITDA \$4.80/unit (\$2.80-6.80/unit) @12% of retail price (7-17%)

WHAT ARE THE KEY CHANNELS?

Supermarkets	✓✓
Pharmacy/Chemist	✓✓✓✓
Online	✓✓
Direct sales	✓✓
Age Care Facility	✓✓✓✓
Daigou	-

WHO IS THE COMPETITON?

MNS, National
& regional firms

WHAT ARE THE POTENTIAL INGREDIENTS?

Hemp (or other ingredients for the elderly)

WHAT COULD IT LOOK LIKE?



HEMP PROTEIN SHAKES FOR THE ELDERLY

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD
Overall health Muscle development		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO
	The Nutritionist Says	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	The Doctor Says	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					SUPPLY CHAIN
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?					Does or could grow in WA <input checked="" type="radio"/>
<ul style="list-style-type: none"> Protein is an essential amino acid Amino acids aiding muscle building and reduce the susceptibility to osteoporosis. 	<ul style="list-style-type: none"> Grow hemp for use in food products (seed in particular) 					Strength in inputs <input type="radio"/>
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					Capabilities across the chain <input type="radio"/>
Hemp provides a high-quality complete protein, with all essential amino acids. Hemp is also highly digestibility. Hemp seeds contain significant amounts of the amino acids methionine and cysteine, as well as very high levels of arginine and glutamic acid.	<ul style="list-style-type: none"> Ongoing research into targeted benefits of hemp and hemp products Research into effective dosages targeting the elderly NPD for new and novel hemp products suitable for the elderly 					Clear partners <input type="radio"/>
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					PRIMARY SECTOR
Easily digestible protein is good for the elderly. They require higher levels of protein as they age.	WA grown ingredients Potential to develop IP controlled products Trusted source/Safe supply					Mechanically harvested <input checked="" type="radio"/>
						High performance genetics available <input type="radio"/>
						Proven, scalable production model <input checked="" type="radio"/>
						Required skills for success <input checked="" type="radio"/>
						PRODUCT CHARACTERISTICS
						Drought tolerant <input type="radio"/>
						Low input production <input type="radio"/>
						Wide range of uses <input type="radio"/>
						Full product utilisation <input checked="" type="radio"/>
						Indigenous knowledge <input type="radio"/>
						OVERALL <input checked="" type="radio"/>

PEA PROTEIN TO REDUCE BLOOD PRESSURE

WHAT IS THE CONCEPT?	Pea protein hydrolysate has a role in reducing blood pressure		
GIVE ME THE ELEVATOR PITCH	High blood pressure is a risk factor for various heart conditions. Peas add more than protein to your diet - pea protein powder could help lower high blood pressure and even improve overall cardiovascular health. WA are gaining the skills and capabilities to succeed in pea proteins.		
WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?		WHAT ARE THE KEY CHANNELS?	
WHAT SORT OF PRICING?	\$40/400g (\$30-50/400g) \$100/kg (\$80-120kg)	Supermarkets	✓
WHAT SORT OF PACK SIZE?	300g, 400g, 450g	Pharmacy/Chemist	✓✓✓✓
WHAT PRODUCT FORM?	Powder supplement, ingredient	Online	✓✓✓✓
WHAT FORM OF PACKAGING?	Plastic, sealed or tin sealed and cardboard seal	Direct sales	✓✓✓✓
WHAT MARGINS WILL THE RETAILER TAKE?	45% (40-50%) of retail selling price	Duty Free	-
WHAT SORT OF PROFITABILITY?	EBITDA \$4.80/unit (\$2.80-6.80/unit) @12% of retail price (7-17%)	Daigou	-
		WHO IS THE COMPETITON?	
		National & Regional firms Canada & US	
WHAT ARE THE POTENTIAL INGREDIENTS?	Pea (water extraction, not chemical)		

WHAT COULD IT LOOK LIKE?



PEA PROTEIN TO REDUCE BLOOD PRESSURE

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD
High blood pressure Reduced risk factors for CVD		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO
	The Nutritionist Says	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
	The Doctor Says	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					SUPPLY CHAIN
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?					Does or could grow in WA
<ul style="list-style-type: none"> A peptide (a small grouping of amino acids) found in pea powder impact the renin-angiotensin system (system that regulates blood pressure). It influences the release of both renin and angiotensin. Pea peptides work to quickly and effectively reduce blood pressure. 	<ul style="list-style-type: none"> Grow peas suitable for end use and desired functional benefits 					Strength in inputs
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					Capabilities across the chain
<i>Straight peas alone aren't enough to deliver available peptides to influence blood pressure but as a protein powder, it seems to have an impact. Pea protein works with nearly all diets which is advantageous.</i>	<ul style="list-style-type: none"> Explore natural extraction processes Explore nutritional and functional benefits of pea proteins Develop clinical studies to support health claims 					Clear partners
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					PRIMARY SECTOR
<i>Research shows pea protein hydrolysate has a role in reducing blood pressure but the science and the interactions are not known.</i>	WA grown ingredients Potential to develop IP controlled pea varieties or extraction techniques Trusted source/Safe supply					Mechanically harvested
						High performance genetics available
						Proven, scalable production model
						Required skills for success
						PRODUCT CHARACTERISTICS
						Drought tolerant
						Low input production
						Wide range of uses
						Full product utilisation
						Indigenous knowledge
						OVERALL

PEA PROTEIN SMOOTHIE FOR THE ELDERLY

WHAT IS THE CONCEPT?	Pea protein smoothies	
GIVE ME THE ELEVATOR PITCH	The elderly required high levels of easily digestible protein to maintain muscle mass. Protein is an essential amino acid aiding the body and inhibiting sarcopenia (age related muscle loss that causes falls and frailty). Protein smoothies are a good and easy source of protein for the elderly. WA has growing capabilities in the pea protein sector.	
WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?		WHAT ARE THE KEY CHANNELS?
WHAT SORT OF PRICING?	\$40/400g (\$30-50/400g) \$100/kg (\$80-120kg)	Supermarkets ✓✓✓✓
WHAT SORT OF PACK SIZE?	300g, 400g, 450g	Pharmacy/Chemist ✓✓✓✓
WHAT PRODUCT FORM?	Powder supplement, ingredient	Online ✓✓
WHAT FORM OF PACKAGING?	Plastic, sealed or tin sealed and cardboard seal	Direct sales ✓✓
WHAT MARGINS WILL THE RETAILER TAKE?	45% (40-50%) of retail selling price	Duty Free -
WHAT SORT OF PROFITABILITY?	EBITDA \$4.80/unit (\$2.80-6.80/unit) @12% of retail price (7-17%)	Daigou -
WHAT ARE THE POTENTIAL INGREDIENTS?		WHO IS THE COMPETITON?
		National & Regional firms Canada & US

WHAT COULD IT LOOK LIKE?



PEA PROTEIN SMOOTHIE FOR THE ELDERLY

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD
High blood pressure Reduced risk factors for CVD		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO
	The Nutritionist Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>
	The Doctor Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					SUPPLY CHAIN
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?					
<ul style="list-style-type: none">Amino acids aid muscle building and reduce the susceptibility to osteoporosis.	<ul style="list-style-type: none">Grow peas suitable for end use and desired functional benefits					
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					PRIMARY SECTOR
Pea protein when combined with exercise aides muscle development and maintenance in all people, including the elderly. Pea protein also works with nearly all diets which is advantageous.	<ul style="list-style-type: none">Explore natural extraction processesExplore nutritional and functional benefits of pea proteinsDevelop clinical studies to support health claims					
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					
Research shows all protein has a beneficial effect on muscle development. Vegetable protein is easily digestible by the elderly and they require higher levels of protein to maintain their muscles.	WA grown ingredients Potential to develop IP controlled pea varieties or extraction techniques Trusted source/Safe supply					Does or could grow in WA
						Strength in inputs
						Capabilities across the chain
						Clear partners
						PRIMARY SECTOR
						Mechanically harvested
						High performance genetics available
						Proven, scalable production model
						Required skills for success
						PRODUCT CHARACTERISTICS
						Drought tolerant
						Low input production
						Wide range of uses
						Full product utilisation
						Indigenous knowledge
						OVERALL

Source: Company websites, articles, publications, reports; Coriolis research and analysis

LUPIN POWDER/FLOUR TO MANAGE BLOOD SUGAR LEVELS

WHAT IS THE CONCEPT?

A protein found in lupins may treat diabetes. Lupin powder allows a controlled dosage.

GIVE ME THE ELEVATOR PITCH

Diabetes is a leading cause of many chronic diseases globally. Lupins are low GI[^], low carb, high protein, gut healthy, high fibre and contain 40% protein. Low carb foods are good for glucose management and to control and reduce insulin. As the global leader in lupins with 80% production, WA can lead the way across all lupin ingredients, products and research.

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?	\$6/500g (\$4-8/500g) \$12/kg (\$10-14/kg)
WHAT SORT OF PACK SIZE?	200g, 500g
WHAT PRODUCT FORM?	Dry Powder
WHAT FORM OF PACKAGING?	Plastic, foil sealed
WHAT MARGINS WILL THE RETAILER TAKE?	45% (40-50%) of retail selling price
WHAT SORT OF PROFITABILITY?	EBITDA \$0.70/unit (\$0.40-1.00/unit) @12% of retail price (7-17%)

WHAT ARE THE KEY CHANNELS?

Supermarkets	✓✓
Pharmacy/Chemist	✓✓✓✓
Online	✓✓✓✓
Direct sales	-
Duty Free	-
Daigou	-

WHO IS THE COMPETITON?

National firms
Smaller, regional firms

WHAT ARE THE POTENTIAL INGREDIENTS?

Lupin powder, lupin flour, probiotics, flavours

WHAT COULD IT LOOK LIKE?



[^] GI = Glycaemic Index; Photo credit: fair use/fair dealing; low resolution; complete product/brand for illustrative purposes; transformative, criticism, comment, scholarship & research; Source: Company websites, articles, publications, reports; Coriolis research and analysis

LUPIN POWDER/FLOUR TO MANAGE BLOOD SUGAR LEVELS

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD
Spikes in blood sugars Diabetes Heart Disease		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO
	The Nutritionist Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>
	The Doctor Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?					
<ul style="list-style-type: none">A protein found in lupins controls the level of insulin the body produces. Gamma-conglutin, one of the proteins of lupin beans that in small doses reduces blood sugar, is responsible for this regulatory effect.	<ul style="list-style-type: none">Grow specific lupins for medicinal purposes					
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					
<i>Lupins are high in protein (40%), dietary fibre (37%) and low in carbohydrates (4%), so it fits well into high protein diet in general and as it's low GI, it can be added into drinks, yoghurt, baking, and smoothies</i>	<ul style="list-style-type: none">Breeding for sweeter varietiesOn-going research into functionality of range of processed lupins for food industryRole of lupin extracts on healthPotential for isolate developmentLupins Proteins role in reducing diabetes					
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					
<i>Lupins similar to other legumes play a role in a healthy diet associated with maintaining good health and reducing diabetes. Of particular interest is lupin proteins impact on diabetes. Further research is required.</i>	WA grown ingredients Potential to develop strong brands and products Trusted source/Safe supply					
SUPPLY CHAIN						
Does or could grow in WA						<div></div>
Strength in inputs						<div></div>
Capabilities across the chain						<div></div>
Clear partners						<div></div>
PRIMARY SECTOR						
Mechanically harvested						<div></div>
High performance genetics available						<div></div>
Proven, scalable production model						<div></div>
Required skills for success						<div></div>
PRODUCT CHARACTERISTICS						
Drought tolerant						<div></div>
Low input production						<div></div>
Wide range of uses						<div></div>
Full product utilisation						<div></div>
Indigenous knowledge						<div></div>
OVERALL						<div></div>

LUPIN INSOLUBLE FIBRE & PROTEIN ISOLATE BEVERAGE

WHAT IS THE CONCEPT?

Lupin extracts such as protein isolate and insoluble fibre provide a solution to food manufacturers

GIVE ME THE ELEVATOR PITCH

Food manufacturers are seeking ingredients with functional health benefits. Lupins have attractive food ingredient attributes adding fibre and plant-based protein to food products such as cakes, icecream, yoghurt, beverages, bread etc.

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?

\$4.50/375ml (\$4-5/375ml)

WHAT SORT OF PACK SIZE?

375ml, 500ml

WHAT PRODUCT FORM?

Drink (milk, shake, smoothie)

WHAT FORM OF PACKAGING?

Plastic, tamper evident seal or cardboard/paper seal

WHAT MARGINS WILL THE RETAILER TAKE?

40% (35-45%)
of retail selling price

WHAT SORT OF PROFITABILITY?

EBITDA \$0.68/unit (\$0.50-0.90/unit)
@15% of retail price (10-20%)

WHAT ARE THE KEY CHANNELS?

Supermarkets

✓✓

Pharmacy/Chemist

-

Online

-

Direct sales

✓✓

Duty Free

-

Ingredient

✓✓✓✓

WHO IS THE COMPETITON?

GWF
National firms

WHAT ARE THE POTENTIAL INGREDIENTS?

Lupins

WHAT COULD IT LOOK LIKE?



LUPIN INSOLUBLE FIBRE & PROTEIN ISOLATE BEVERAGE

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD
Increasing fibre in diet (gut health) Plant-based protein (diet related)		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO
	The Nutritionist Says	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	The Doctor Says	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					SUPPLY CHAIN
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?					Does or could grow in WA
<ul style="list-style-type: none"> Extracted protein isolate (alternative non-dairy protein) >90% protein to use in meals, ingredients for range of functional purposes. 	<ul style="list-style-type: none"> Grow high protein, high fibre varieties of lupins 					Strength in inputs
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					Capabilities across the chain
Lupins are high in protein (40%), dietary fibre (37%) and low in carbohydrates (4%), so it fits well into high protein diet in general.	<ul style="list-style-type: none"> Breeding for sweeter varieties Continue research into nutritional and health benefits of lupins Assist with NPD development targeting health benefits 					Clear partners
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					PRIMARY SECTOR
Lupins similar to other legumes play a role in a healthy diet associated with maintaining good health. The high fibre in will certainly support a healthy gut, and plant based proteins are a good alternative to dairy based proteins.	WA grown ingredients Global leaders in Lupins Potential to develop IP controlled varieties Trusted source/Safe supply					Mechanically harvested
						High performance genetics available
						Proven, scalable production model
						Required skills for success
						PRODUCT CHARACTERISTICS
						Drought tolerant
						Low input production
						Wide range of uses
						Full product utilisation
						Indigenous knowledge
						OVERALL

OAT POWDER TO REDUCE CHOLESTEROL AND CVD*

WHAT IS THE CONCEPT?

Oats which are high in beta-glucan are shown to reduce cholesterol and CDV

GIVE ME THE ELEVATOR PITCH

High cholesterol is a risk factor in the development of coronary heart disease. 3g/day of oats betaglucon can achieve a reduction in LDL[^] cholesterol of up to 10% and reduce the risk of CVD by as much as 20%.

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?

\$40/400g (\$30-50/400g)
\$100/kg (\$80-120kg)

WHAT SORT OF PACK SIZE?

300g, 400g, 450g

WHAT PRODUCT FORM?

Powder supplement, ingredient

WHAT FORM OF PACKAGING?

Plastic, sealed
or tin sealed and cardboard seal

WHAT MARGINS WILL THE RETAILER TAKE?

45% (40-50%)
of retail selling price

WHAT SORT OF PROFITABILITY?

EBITDA \$4.80/unit (\$2.80-6.80/unit)
@12% of retail price (7-17%)

WHAT ARE THE KEY CHANNELS?

Supermarkets

✓✓✓✓

Pharmacy/Chemist

✓✓✓✓✓

Online

✓✓

Direct sales

-

Duty Free

-

Daigou

-

WHO IS THE COMPETITON?

Earth Living, BioGrain, Henry Blooms
National and regional firms

WHAT ARE THE POTENTIAL INGREDIENTS?

Beta Glucan from Oat powder, flavours

WHAT COULD IT LOOK LIKE?



[^]LDL = Low density lipoprotein; *CVD = Cardio vascular disease; Photo credit: fair use/fair dealing; low resolution; complete product/brand for illustrative purposes; transformative, criticism, comment, scholarship & research; Source: Company websites, articles, publications, reports; Coriolis research and analysis

OAT POWDER TO REDUCE CHOLESTEROL AND CVD

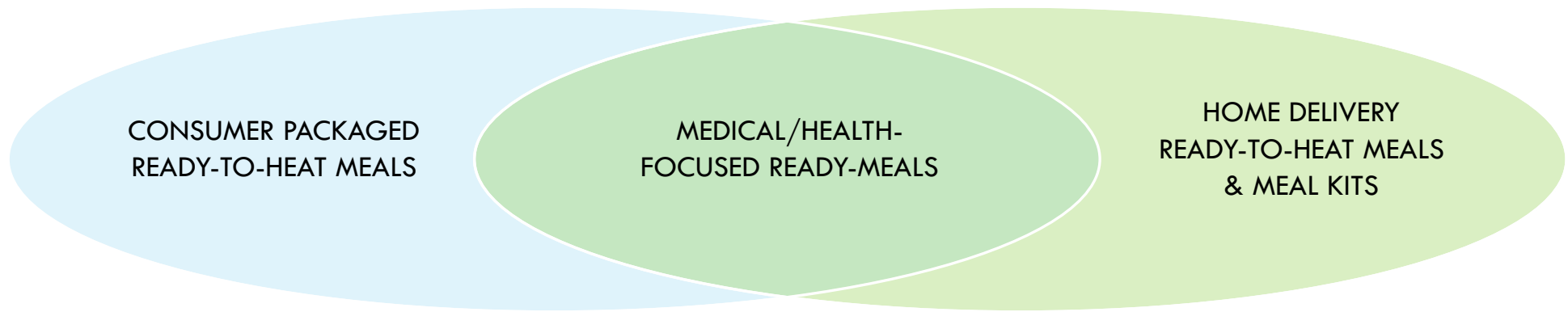
WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD	
High cholesterol Cardio vascular disease		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO	SUPPLY CHAIN
	The Nutritionist Says	●	○	○	○	○	Does or could grow in WA ●
	The Doctor Says	●	○	○	○	○	Strength in inputs ●
WHAT DO THE EXPERTS SAY?		WHAT'S IN IT FOR WESTERN AUSTRALIA?					Capabilities across the chain ●
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?		HOW CAN WA FARMERS PARTICIPATE?					Clear partners ●
<ul style="list-style-type: none">Oats are a naturally rich source of beta-glucan.Role of oat beta-glucan, and specifically its viscosity in lowering blood cholesterol levels		<ul style="list-style-type: none">Grow high beta-glucan oat varieties					PRIMARY SECTOR
WHAT DOES THE NUTRITIONIST SAY?		HOW CAN WA SCIENTISTS PARTICIPATE?					Mechanically harvested ●
Oats are known globally to reduce cholesterol and reduce the risk of heart disease.		<ul style="list-style-type: none">Develop high beta-glucan oat varieties for use in powderDevelop fractionating process to increase concentrations of beta glucans to use as oat ingredient					High performance genetics available ●
WHAT DOES THE DOCTOR SAY?		WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					Proven, scalable production model ●
The effect of oat beta-glucan on both serum cholesterol and blood glucose reduction is proven.		WA grown ingredients Potential to develop IP controlled species Trusted source/Safe supply					Required skills for success ●
							PRODUCT CHARACTERISTICS
							Drought tolerant ○
							Low input production ○
							Wide range of uses ●
							Full product utilisation ●
							Indigenous knowledge ○
							OVERALL ●

Source: Company websites, articles, publications, reports; Coriolis research and analysis

TABLE OF CONTENTS

page 7	page 17	page 54	page 75	page 105	page 133
<i>Context, Markets and Process</i>	<i>Conditions, Concepts and Challenges</i>	<i>Health Focused Dairy/Alternative Dairy</i>	<i>Oat Extracts</i>	<i>Plant Proteins</i>	<i>Medical/Health Focused Ready Meals</i>
page 161	page 205	page 233	page 262	page 337	
<i>Botanical Waste Streams</i>	<i>Meat Extracts</i>	<i>Bushcrop Extracts</i>	<i>Other Opportunities</i>	<i>Appendix I Markets & Conditions Details</i>	

This concept combines two related types of products; both are within the scope under discussion



- Consumer packaged
- Retail-ready/purchased at retail
- Refrigerated or frozen
- Individual units

- Plain, minimal, bulk packaging
- Delivered to the consumer
- Refrigerated or frozen
- Multipack (e.g. five days supply)

-
- Products targeted at retirement villages, hospital and similar operators

Why medical/health-focused ready-meals? Because there is large and growing demand worldwide

“Older adults may only need meals for one or two people and may be unable to shop for ingredients or cook meals easily. Using a meal delivery service can help save time and effort.... Meal delivery services offer either ready-made meals or meal kits. Meal kits include ingredients and a recipe, which a person can use to prepare meals at home. Some older adults may prefer the convenience of heating up a ready-made meal. Others may enjoy cooking ... in which case they may prefer a meal kit... Additionally, some older adults may have health conditions or need to eat special diets, so they may prefer services that provide meals to suit them. Depending on their health, some older adults may need to eat pureed food, and some brands offer this.”

MEDICALNEWS TODAY

“As you age, following a nutritious diet is essential to reduce your chronic disease risk and maintain good health. However, many older adults may find it difficult to prepare nutrient-dense meals themselves, which may lead to nutritional frailty — a condition characterized by loss of muscle mass and strength. This may make them more susceptible to injury and illness. Plus, older adults who don't have the energy or ability to shop or cook may eat more convenience foods like fast food... A high intake of these processed foods may harm health and shorten life span. That's why healthy meal delivery services are a good option for some older adults. They deliver meals and ingredients straight to your door and are easy to prepare.”

healthline

“The delivery of personalized, low-sodium meals to the homes of heart failure patients just out of the hospital has the potential to help them avoid rehospitalization in the days ahead, a new study shows.

Poor nutrition and excessive sodium consumption are common among patients with heart failure and are thought to contribute to their hospitalizations. These patients are usually advised by doctors to restrict their salt intake, but past studies have not shown that this basic recommendation reduces hospital readmissions or death.”



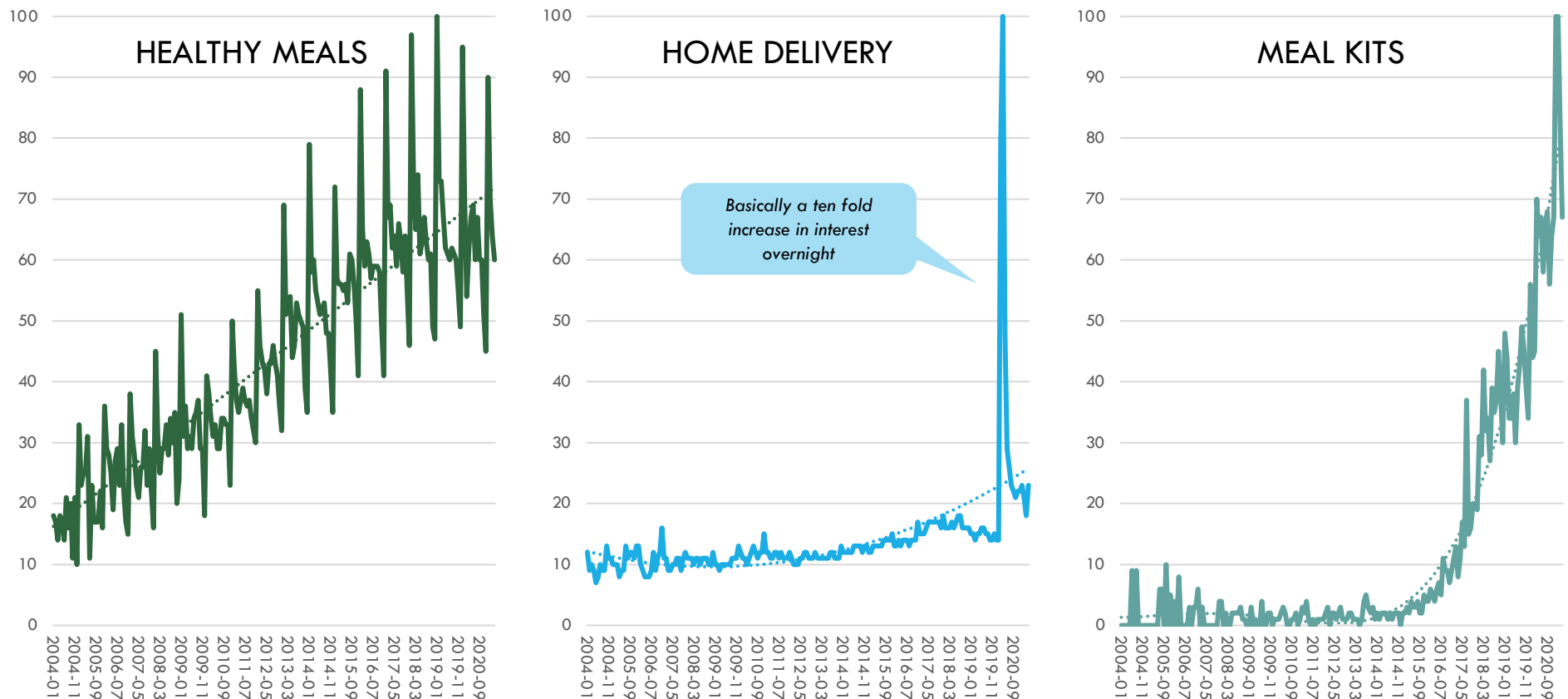
“According to the Centers for Disease Control and Prevention, more than 71% of Americans are overweight or obese... But navigating weight loss can be confusing and difficult... Dieting can be hard with temptation all around. But a meal delivery service might help you stay on course, especially in the beginning when you're working so hard to change your habits.”



Global interest in health meals, home deliver and meal kits is all surging, particularly since COVID

17Y WORLDWIDE GOOGLE TRENDS SEARCH INTEREST INDEX OVER TIME*

Relative index; 2004-2021



NOTE: Numbers represent search interest relative to the highest point on the chart for the given region and time. A value of 100 is the peak popularity for the term. A value of 50 means that the term is half as popular. Source: Google Trends; Coriolis analysis

Surging demand from consumers is driving growth in home meal deliveries across all forms

“Increasing preference for homemade meals among millennials is a major factor contributing to the growth of the market. The service has been gaining high popularity and adoption among generation Y and Z. Most consumers are of the opinion that the price paid for the service is justified for the benefits it provides. The COVID-19 pandemic has offered a significant opportunity to the market as almost all the restaurants, eateries, and hotels were shut down across the globe. People are focusing on a healthy diet more than ever to increase their immunity and maintain a balanced diet. A meal kit seems to be a one-stop solution for virtually all players across the entire F&B ecosystem.”



“Take the hassle out of eating healthily by getting your grub delivered. There are many ways to cut down the time it takes to cook a healthy meal... However, sometimes you don’t even have 15 minutes to spare... it’s all too easy to turn to the takeaway menu or a supermarket ready meal, both of which often contain high levels of sugar, fat, and salt, and very few servings of vegetables, meaning you’re missing out on the vitamins, minerals, fibre and all the other stuff your body would benefit from eating more of. Fortunately, there is another way – the healthy meal delivery service. These generally send over a whole bunch of microwaveable meals for the week that you can store in your fridge, close to hand whenever you’re caught short.”

COACH

“The concept of food delivery isn’t new. From ordering telephonically to using dedicated online platforms linked to a particular restaurant, the process of ordering food has become as easy as, well, heating a frozen TV dinner... Online food companies are finding to their delight that customers are ravenous for such services. Industry growth rates have skyrocketed as millions of customers have shown themselves more than willing to have food delivered at the press of a button rather than spend protracted periods stirring ladle in pot.”

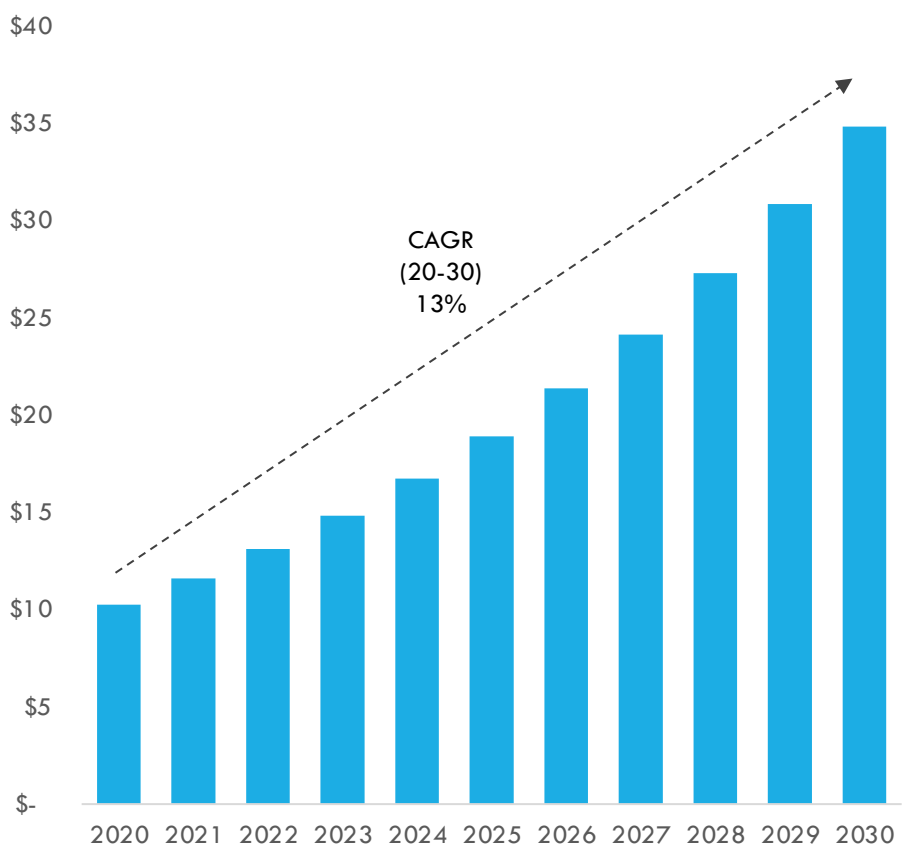
Forbes

“[A]s in so many other sectors, the rise of digital technology is reshaping the market. Consumers accustomed to shopping online through apps or websites, with maximum convenience and transparency, increasingly expect the same experience when it comes to ordering dinner..”

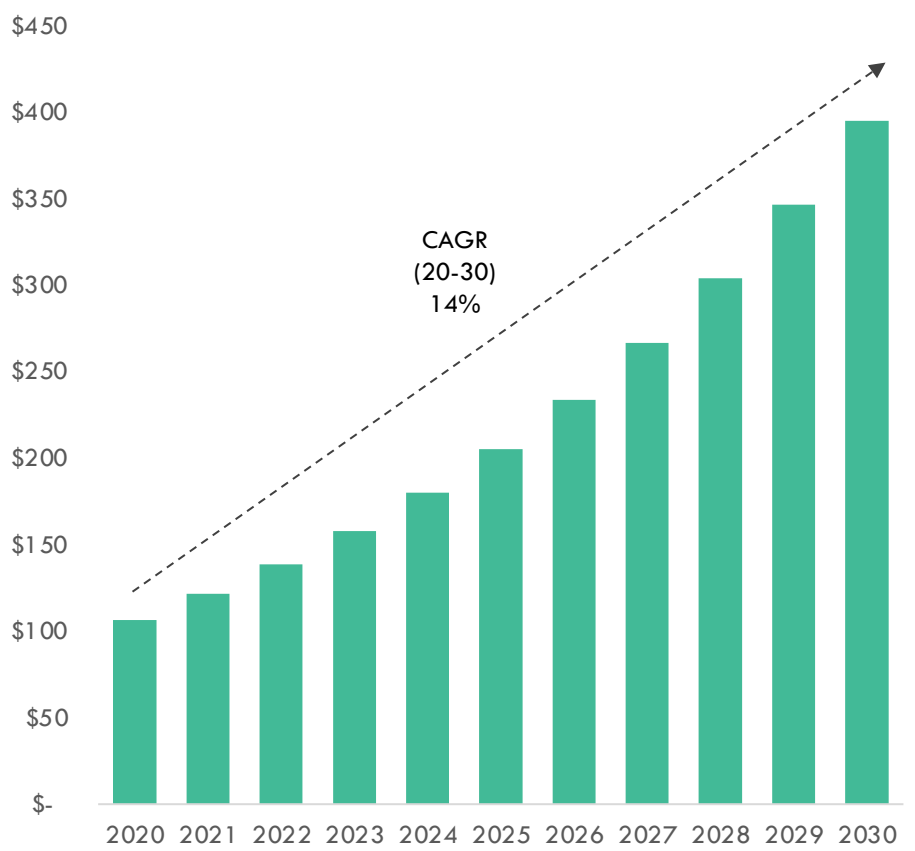
**McKinsey
& Company**

Delivery meal kits and deliver meals are both forecast to grow strongly over the next decade

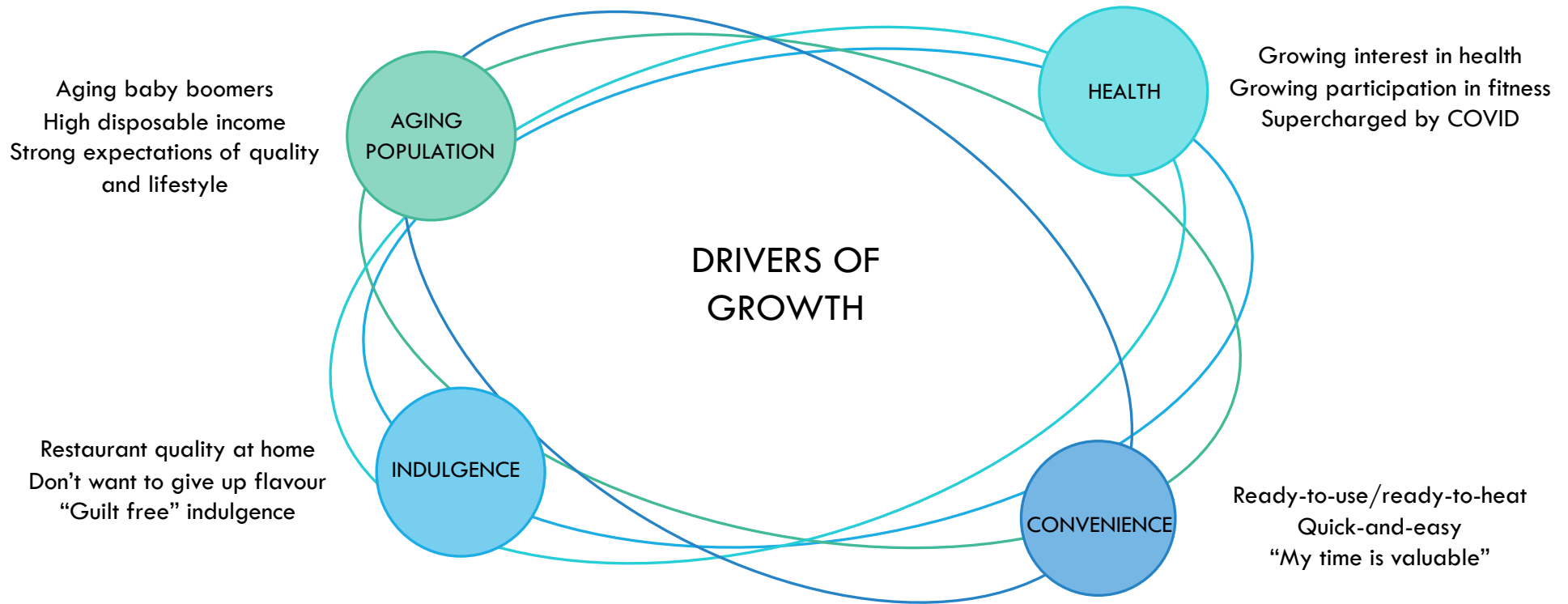
GLOBAL MEAL KIT DELIVERY MARKET VALUE
US\$, b; 2020-2030



GLOBAL HOME MEAL DELIVERY VALUE
US\$, b; 2020-2030



Global growth is coming from solid, long term drivers of growth



How could we do it?

STRAWMAN FOR DISCUSSION

VISION:

Western Australia builds a strong medical/health-focused ready-meals sector targeting health by leveraging existing strong existing capabilities into new markets

1

Comprehensive stocktake of existing resources on the ground in the space

Bring together the “pieces of the puzzle” already in place in Western Australia

Create a “coalition of the willing” to take to opportunity forward

2

Work collaboratively with scientists and the medical system to develop meals for people with specific conditions

Develop a narrow initial range of meals targeting a single conditions (e.g. diabetes) to “get the ball rolling”

Extend range through additional research.

3

Build market, initially targeting Western Australia

Initial focus on direct sales/direct delivery

Focus on developing highly efficient supply chain logistics

What does the concept look like? Home delivery of health-focused ready-meals

EXAMPLE: MIGHTY MACROS (USA) **MIGHTY MACROS**

HOW IT WORKS

1 YOU CHOOSE

Choose the meal plan that matches your goals and lifestyle, and your meals for the week.

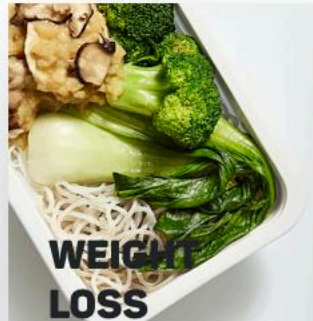
2 WE DELIVER

Your healthy meals for the week arrive fresh at your door in an insulated, recyclable box.

3 YOU ENJOY

Ready-made and pre-portioned, simply heat and eat from the comfort of your home or office. No meal prep needed!

CHOOSE YOUR FUEL



WEIGHT LOSS

FAST-TRACK
RESULTS

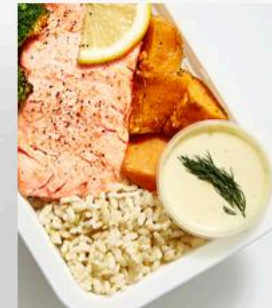
Low carb and low cal meals under 350 calories to support weight loss.



SCULPT

GET LEAN AND
DEFINED

High protein and low carb meals for shredding and toning.



PERFORM

MAINTAIN PEAK
FITNESS

Protein-packed meals boosted with carbs for stamina and recovery.



GAIN

BUILD MUSCLE
MASS

Calorie, carb, and protein-loaded meals to fuel muscle growth.

What does the concept look like? Home delivery of medical ready-meals

EXAMPLE: MAGIC KITCHEN (USA)



GENERAL DIETS

Dairy free

Gluten free

Low carbohydrate

Low fat

Low sodium

"Senior Diet"

Vegetarian

SPECIFIC DIETS

Diabetic friendly

Hospital discharge

MLTC meals*

Portion control

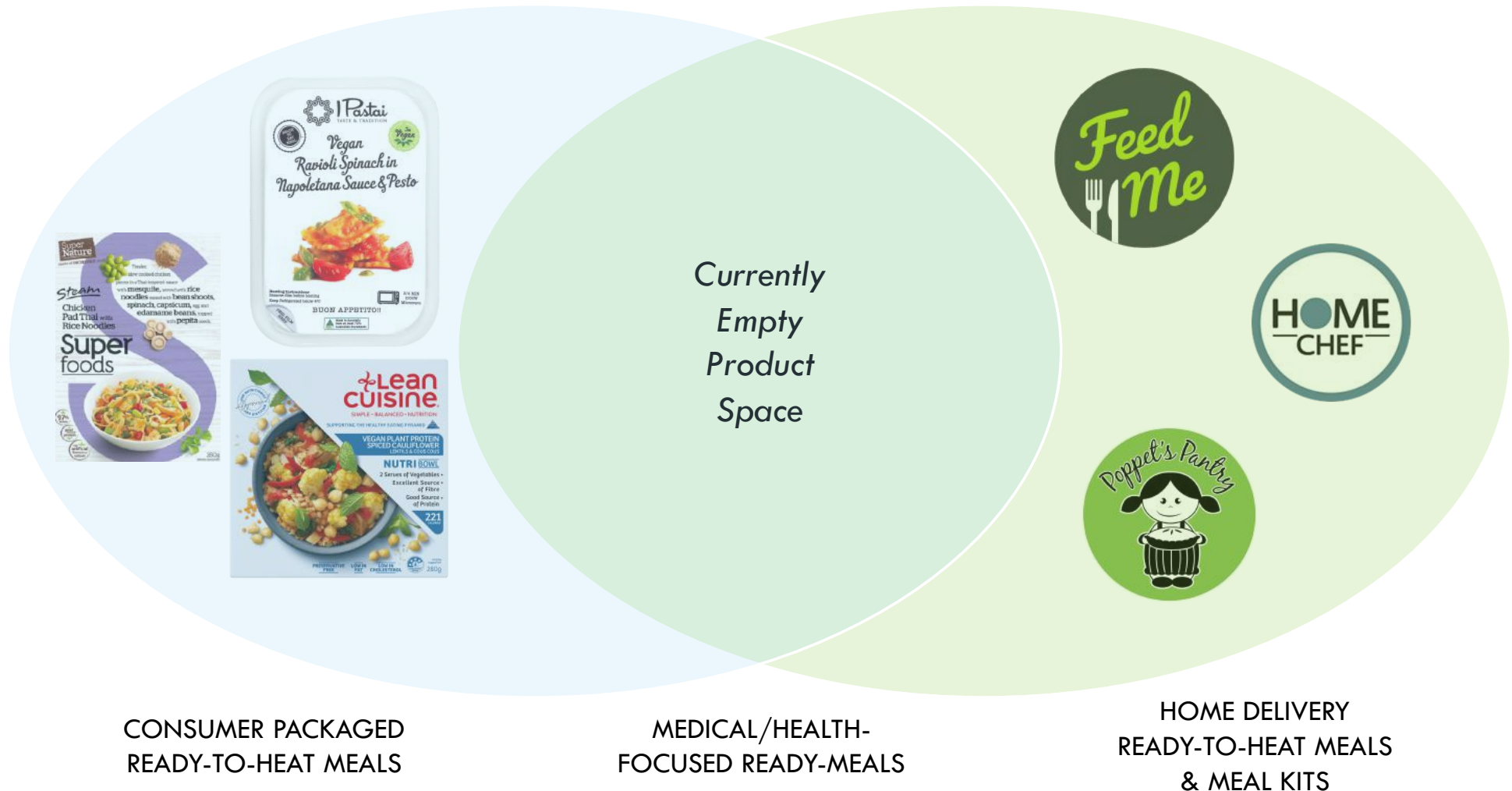
Renal diet

Vegetarian



* Managed Long Term Care; Source: Magic Kitchen website; Photo credit: fair use/fair dealing; low resolution; complete product/brand for illustrative purposes; transformative, criticism, comment, scholarship & research;

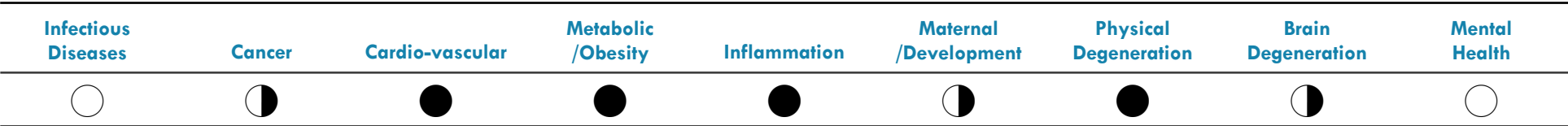
WA appears to have both retail ready-meals and home meal delivery, but no one has yet focused on targeting specific health & medical needs



The medical/health-focused ready-meals platform can serve consumers with a wide range of conditions

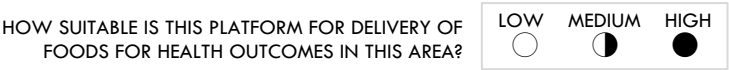
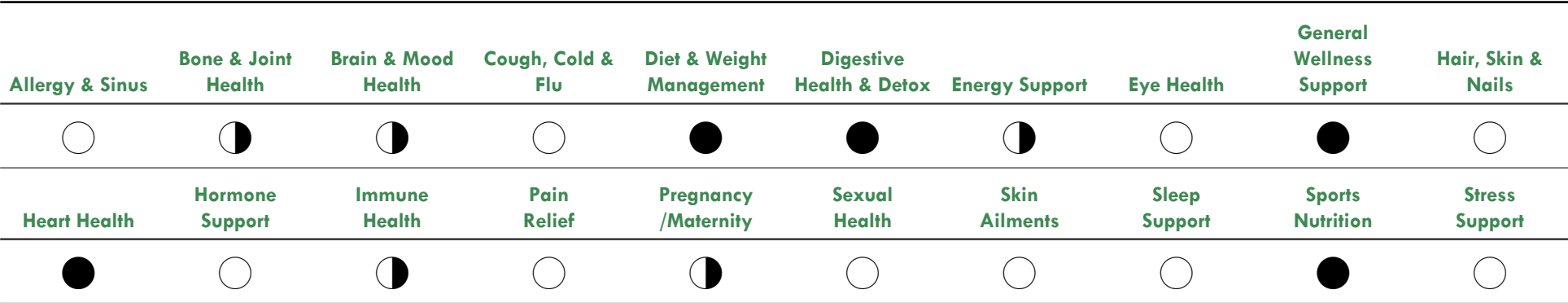
MEDICAL

WHICH BROAD CATEGORIES (FROM A MEDICAL POINT-OF-VIEW) CAN BE TARGETED WITH THIS PLATFORM?



RETAIL

WHICH BROAD CATEGORIES (FROM A RETAIL POINT-OF-VIEW) CAN BE TARGETED WITH THIS PLATFORM?

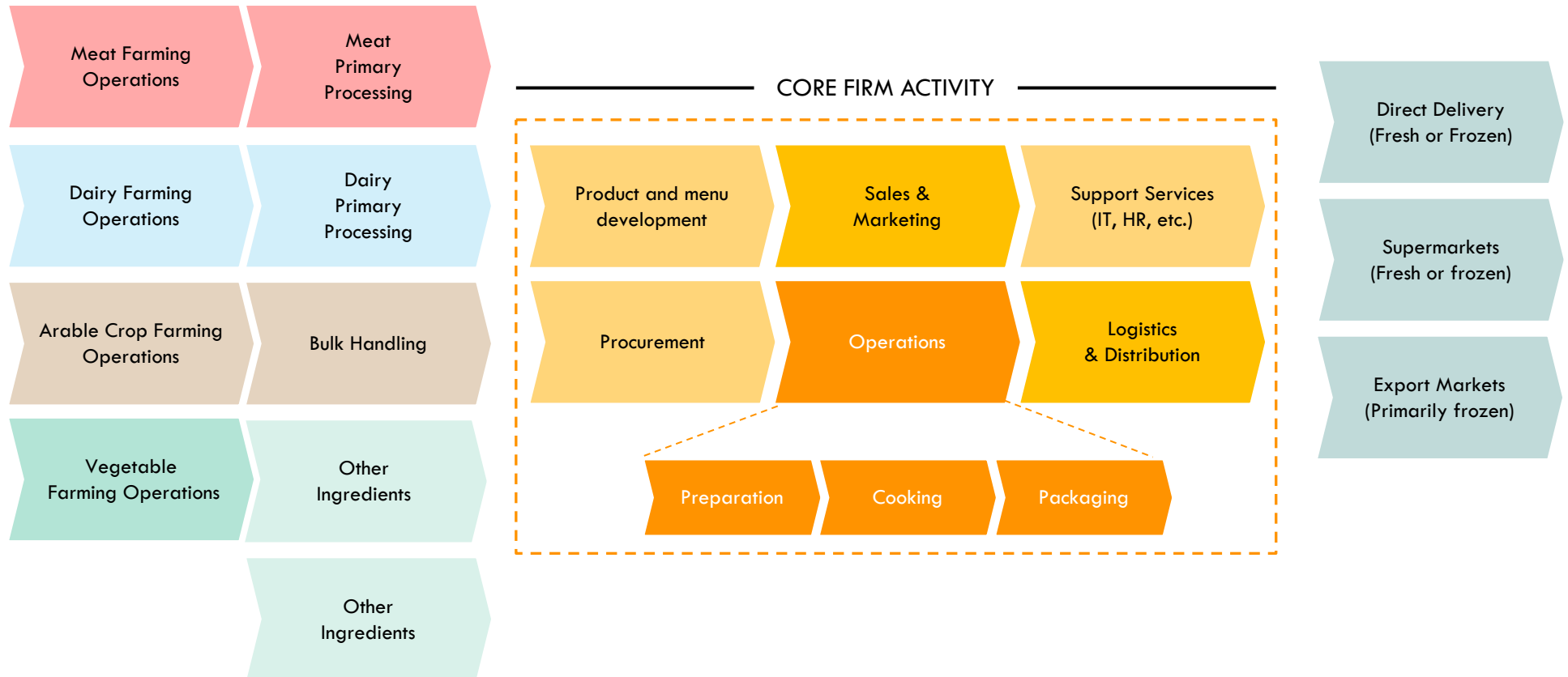


Western Australian medical/health-focused ready-meals are well positioned to execute on and deliver key trends

CORIOLIS FOOD & BEVERAGE TRENDScopeSM

TIME SAVING	FAST	EASY OPEN	SOCIAL	INSTA READY	PICTURESQUE
HASSLE FREE	SIMPLIFIES	EASY	REWARDS	FARM TOUR	FUN
LOW EFFORT	CONVENIENCE	RANGE	CONNECTIONS	INVOLVEMENT	ARTISAN
SOLUTIONS	READY TO COOK	READY TO EAT/USE	HAND CRAFTED	SMALL BATCH	SENSORY
MICROWAVE	REUSABLE	STORY TELLING	AUTHENTIC	CELLAR DOOR	AGED
SUPERIOR	RICH FLAVOUR	SPECIAL EDITION	TRADITIONAL	RESPONSIBLE	FAMILY OWNED
DISTINCT	PROMOTED	SPONSOR	CERTIFIED	HEIRLOOM	FAIR TRADE
ENDORSED	PREMIUM	ADVERTISED	PROTECTED	STEWARDSHIP	TRADE AID
FAMOUS	AWARD WINNING	"ESTATE" GROWN	LIFE CYCLE	TRACEABLE	ETHICAL
QUALITY	EXPENSIVE	RARE/UNIQUE	SOCIALLY AWARE	INDIGENOUS	FREE RANGE
LOW FAT	LOW CARB	TRUSTED	LOCAL	NATIVE CROPS	GRASS FED
PROTEIN	FREE FROM	NO HORMONES	LOW INPUT	CARBON ZERO	EARTH FRIENDLY
NUTRACEUTICAL	HEALTH	NATURAL	ECOLOGICAL	SUSTAINABLE	LOW WATER USE
THERAPEUTIC	CHEMICAL FREE	PLANT BASED	BEE FRIENDLY	NITROGEN FIXING	ORGANIC
MEDICINAL	WELLNESS	PALEO	RENEWABLE	BIODYNAMIC	REGENERATIVE

How would the value chain be organised?



Who are the high potential commercial partners for this opportunity?

				
Firm	VESCO FOODS	FEED ME	HOME CHEF	POPPET'S PANTRY
Relevant product categories	Ready meals Meal solutions Baby foods	Meal delivery (Perth, South West, Geraldton)	Meal delivery (Perth) Health focused meals	Meal delivery (Perth)

				
Firm	PROCESSED MEATS	I PASTAI	MANCINI	SMALL/MED BAKED
Relevant product categories	Cured meats Meat products	Ready Meals Pasta Sauces	Pasta Filled Pasta	Pasta Breads Baked goods

Who are the other key stakeholders?



Where is investment required?

1

INVESTING IN **NEW PRODUCT DEVELOPMENT**

- While clear global models exist, products are conceptual at this point
- Significant work is needed to ensure meals are suited for people with serious medical conditions

2

INVESTING IN DEMONSTRATING THE **EFFICACY OF FUNCTIONAL INGREDIENTS**

- Solid evidence is required before specific, targeted health claims can be made
- Alternatively, initial products can leverage proven ingredients with accepted claims

3

INVESTING IN REQUIRED **MARKETING**

- Target consumer and their caregivers need to be made aware of this service
- Funding bodies need to be made aware of the benefits of this service on recovery rates

What medical/health focused ready meal products emerged from Stage I of the screen?



KETOGENIC READY MEALS TARGETING EPILEPSY

WHAT IS THE CONCEPT?

Ketogenic ready meals to reduce the effects of epilepsy

GIVE ME THE ELEVATOR PITCH

Epilepsy and it's associated seizures is a debilitating condition. A ketogenic diet has been known as a successful epilepsy treatment since the 1920s. The diet effectively mimics the effects of a form of starvation and reduces seizures.

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?

\$10/300g (\$8-12/meal)
\$33/kg (\$27-40/kg)

WHAT SORT OF PACK SIZE?

300g

WHAT PRODUCT FORM?

Meal

WHAT FORM OF PACKAGING?

Plastic, seal
or cardboard/paper seal

WHAT MARGINS WILL THE RETAILER TAKE?

35% (30-40%)
of retail selling price

WHAT SORT OF PROFITABILITY?

EBITDA \$1.00/unit (\$0.50-1.50/unit)
@10% of retail price (5-15%)

WHAT ARE THE KEY CHANNELS?

Supermarkets

✓✓

Pharmacy/Chemist

-

Online

✓✓✓✓

Direct sales

Duty Free

-

Daigou

-

WHO IS THE COMPETITON?

Freshn'Lean, Primal Kitchen
National, regional firms

WHAT ARE THE POTENTIAL INGREDIENTS?

Full range of vegetables, free range meats and clean proteins

WHAT COULD IT LOOK LIKE?



KETOGENIC READY MEALS TARGETING EPILEPSY

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD	
Epilepsy		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO	SUPPLY CHAIN
	The Nutritionist Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Does or could grow in WA <div></div>
	The Doctor Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Strength in inputs <div></div>
WHAT DO THE EXPERTS SAY?		WHAT'S IN IT FOR WESTERN AUSTRALIA?					Capabilities across the chain <div></div>
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?		HOW CAN WA FARMERS PARTICIPATE?					Clear partners <div></div>
<ul style="list-style-type: none">The exact mechanisms behind the ketogenic diet's antiseizure effects remain unknown. But the diet works for drug resistant patients		<ul style="list-style-type: none">Grow vegetables, fats and proteins for diet specific ready meals					PRIMARY SECTOR
WHAT DOES THE NUTRITIONIST SAY?		HOW CAN WA SCIENTISTS PARTICIPATE?					Mechanically harvested <div></div>
<p>A keto diet is pretty strict so pretty challenging for many people. It may pay to move between the various diets that are shown to be good for epilepsy like the Atkins, MCT* diets and Low GI^.</p>		<ul style="list-style-type: none">R&D into meal solutions formulations appropriate for Ketogenic diet, Low GI^ diet and MCT* diets					High performance genetics available <div></div>
WHAT DOES THE DOCTOR SAY?		WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					Proven, scalable production model <div></div>
<p>There is good evidence linking the reduction in frequency of seizures in patients with drug resistant epilepsy to a keto diet. No one really knows why. Many diets require supervision by doctors and dieticians to watch for side-effects.</p>		<p>WA grown ingredients Potential to develop position in diet-focused ready meals Trusted source/Safe supply</p>					Required skills for success <div></div>
							PRODUCT CHARACTERISTICS
							Drought tolerant <div></div>
							Low input production <div></div>
							Wide range of uses <div></div>
							Full product utilisation <div></div>
							Indigenous knowledge <div></div>
							OVERALL <div></div>

[^] GI = Glycaemic Index; *MCT = medium-chain triglyceride; Source: Company websites, articles, publications, reports; Coriolis research and analysis

LOW CARB READY MEALS FOR WEIGHT MANAGEMENT

WHAT IS THE CONCEPT?

Low carb meals and diets aimed at suppressing appetite and weight loss

GIVE ME THE ELEVATOR PITCH

Obesity related illnesses effect millions of people globally. Low carb diets aim to suppress appetite and support weight loss. WA firms have the skills and capabilities to succeed in this area.

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?

\$10/200g (\$8-12/meal)
\$50/kg (\$40-60/kg)

WHAT SORT OF PACK SIZE?

150g, 200g, 300g

WHAT PRODUCT FORM?

Reay meal

WHAT FORM OF PACKAGING?

Plastic, sealed
or cardboard/paper seal

WHAT MARGINS WILL THE RETAILER TAKE?

35% (30-40%)
of retail selling price

WHAT SORT OF PROFITABILITY?

EBITDA \$1.00/unit (\$0.50-1.50/unit)
@10% of retail price (5-15%)

WHAT ARE THE KEY CHANNELS?

Supermarkets	✓✓✓✓
Pharmacy/Chemist	✓✓✓✓
Online	✓✓
Direct sales	✓✓✓✓
Duty Free	-
Daigou	-

WHO IS THE COMPETITON?

National firms
Smaller, regional firms

WHAT ARE THE POTENTIAL INGREDIENTS?

Full range of vegetables, meats, fibre

WHAT COULD IT LOOK LIKE?



LOW CARB READY MEALS FOR WEIGHT MANAGEMENT

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD
Obesity Diabetes CVD		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO
	The Nutritionist Says	●	○	○	○	○
	The Doctor Says	●	○	○	○	○
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					SUPPLY CHAIN
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?					Does or could grow in WA
<ul style="list-style-type: none"> Low carb diet restricts glucose supply to the blood and cells. Energy comes from fatty acids. 	<ul style="list-style-type: none"> Grow more vegetables that are diet specific Grow antibiotic free, hormone free animal proteins 					Strength in inputs
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					Capabilities across the chain
<p><i>Cutting carbs is a great way to lose weight fast, mainly because you get rid of water and lower insulin levels. Hunger is also suppressed which makes it easier to stick to your diet.</i></p>	<ul style="list-style-type: none"> Further research into sustainable weight loss meal solutions, that also include a full range of vitamins and fibre 					Clear partners
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					PRIMARY SECTOR
<p><i>Diet has a significant impact on health, and low carb, high fat diets can help weight loss. However, there is limited long term evidence on the effects of exclusion diets on weight loss and health</i></p>	<p>WA grown ingredients Potential to develop strong brands Trusted source/Safe supply</p>					Mechanically harvested
						High performance genetics available
						Proven, scalable production model
						Required skills for success
						PRODUCT CHARACTERISTICS
						Drought tolerant
						Low input production
						Wide range of uses
						Full product utilisation
						Indigenous knowledge
						OVERALL

SUBSCRIPTION READY MEALS TARGETING SPECIFIC CONDITIONS

WHAT IS THE CONCEPT?

Subscription ready meals targeting seniors (and other people) with specific conditions

GIVE ME THE ELEVATOR PITCH

Better hospital food at home. Subscription TV Dinner meets First Class Airline food. Specific meals for people with specific conditions (e.g. diabetic, renal, dialysis). Most seniors – in particular - will have some form of medical condition that will require a diet adjustment.

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?

\$12++/meal
\$22/kg (est.)

WHAT SORT OF PACK SIZE?

~400g (300-500g)

WHAT PRODUCT FORM?

Fresh, perishable or frozen ready-to-heat meals

WHAT FORM OF PACKAGING?

Foil tray; cardboard box; plastic cups/lids for sauces; foil packs; other

WHAT MARGINS WILL THE RETAILER TAKE?

0%
Direct sales

WHAT SORT OF PROFITABILITY?

Ideally EBITDA \$1.20/meal+
@10% of retail price

WHAT ARE THE KEY CHANNELS?

Supermarkets

-

Pharmacy/Chemist

-

Online

-

Direct sales

✓✓✓✓

Duty Free

-

Daigou

-

WHO IS THE COMPETITION?

Hello Fresh, Marley Spoon, Dinnerly, ChefGood
Other meal kit companies
Small, regional startups

WHAT ARE THE POTENTIAL INGREDIENTS?

A full range of seasonal meat, fruits, vegetables and condiments

WHAT COULD IT LOOK LIKE?



SUBSCRIPTION READY MEALS TARGETING SPECIFIC CONDITIONS

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD	
Multiple conditions		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO	SUPPLY CHAIN
	The Nutritionist Says	●	○	○	○	○	Does or could grow in WA ●
	The Doctor Says	●	○	○	○	○	Strength in inputs ●
WHAT DO THE EXPERTS SAY?		WHAT'S IN IT FOR WESTERN AUSTRALIA?					Capabilities across the chain ●
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?		HOW CAN WA FARMERS PARTICIPATE?					Clear partners ●
• Dietary restrictions are common for many medical conditions		• Continue producing a wide range of healthy foods					PRIMARY SECTOR
WHAT DOES THE NUTRITIONIST SAY?		HOW CAN WA SCIENTISTS PARTICIPATE?					Mechanically harvested ○
Great tasting meals delivered regularly would likely increase compliance and reduce un-approved snacking.		• Improved understanding of specific dietary requirements relating to specific medical conditions • Users could be used for controlled trials					High performance genetics available ●
WHAT DOES THE DOCTOR SAY?		WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					Proven, scalable production model ●
A lot of patients need this. Cost is always an issue.		WA grown ingredients Trusted source/Safe supply					Required skills for success ●
							PRODUCT CHARACTERISTICS
							Drought tolerant ○
							Low input production ○
							Wide range of uses ○
							Full product utilisation ○
							Indigenous knowledge ○
							OVERALL ●

SUBSCRIPTION READY MEALS TARGETING OBESITY/WEIGHT LOSS

WHAT IS THE CONCEPT?

Subscription ready meals for people seeking to lose weight

GIVE ME THE ELEVATOR PITCH

“Doctor designed” meals customised to your needs and delivered to your door. “Providing a healthy and delicious meal delivery service that is perfectly suited for weight loss.” “Weight loss without the sacrifice.” “We cook the food, you lose the weight.”

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?

\$12++/meal
\$22/kg (est.)

WHAT SORT OF PACK SIZE?

~400g (300-500g)

WHAT PRODUCT FORM?

Fresh, perishable or frozen ready-to-heat meals

WHAT FORM OF PACKAGING?

Foil tray; cardboard box; plastic cups/lids for sauces; foil packs; other

WHAT MARGINS WILL THE RETAILER TAKE?

0%
Direct sales

WHAT SORT OF PROFITABILITY?

Ideally EBITDA \$1.20/meal+
@10% of retail price

WHAT ARE THE KEY CHANNELS?

Supermarkets

-

Pharmacy/Chemist

-

Online

-

Direct sales

✓✓✓✓

Duty Free

-

Daigou

-

WHO IS THE COMPETITION?

Hello Fresh, Marley Spoon, Dinnerly, ChefGood
Other meal kit companies
Small, regional startups

WHAT ARE THE POTENTIAL INGREDIENTS?

A full range of seasonal meat, fruits, vegetables and condiments

WHAT COULD IT LOOK LIKE?



SUBSCRIPTION READY MEALS TARGETING OBESITY/WEIGHT LOSS

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD	
Obesity, Metabolic Syndrome, Diabetes, other weight-related issues		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO	SUPPLY CHAIN
	The Nutritionist Says	●	○	○	○	○	Does or could grow in WA ●
	The Doctor Says	●	○	○	○	○	Strength in inputs ●
WHAT DO THE EXPERTS SAY?		WHAT'S IN IT FOR WESTERN AUSTRALIA?					Capabilities across the chain ●
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?		HOW CAN WA FARMERS PARTICIPATE?					Clear partners ●
<ul style="list-style-type: none">Eating healthy, well balanced meals made with fresh ingredients leading to weight loss.		<ul style="list-style-type: none">Continue producing a wide range of healthy foods					PRIMARY SECTOR
WHAT DOES THE NUTRITIONIST SAY?		HOW CAN WA SCIENTISTS PARTICIPATE?					Mechanically harvested ○
<i>In a perfect world, people would just prepare healthy meals at home from locally purchased foods. In the real world, this will work for people that can afford the service.</i>		<ul style="list-style-type: none">Improved understanding of specific dietary requirements relating to weight lossPotential ingredients that will support or accelerate weight lossUsers could be used for controlled trials					High performance genetics available ●
WHAT DOES THE DOCTOR SAY?		WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					Proven, scalable production model ●
<i>In reality, a large percent of the population need this. However, cost is always an issue. Having said that, the costs of obesity are seen in the medical system.</i>		WA grown ingredients Trusted source/Safe supply					Required skills for success ●
							PRODUCT CHARACTERISTICS
							Drought tolerant ○
							Low input production ○
							Wide range of uses ○
							Full product utilisation ○
							Indigenous knowledge ○
							OVERALL ●

Source: Company websites, articles, publications, reports; Coriolis research and analysis

LOW FODMAP READY MEALS TARGETING IBS

WHAT IS THE CONCEPT?

Low FodMap* meals targeting people with irritable bowel syndrome (IBS)

GIVE ME THE ELEVATOR PITCH

About 14% of people in the USA have IBS, it is a significant issue across AU and Asia caused by diet and stress. WA has the skills and capabilities to grow Low FodMap foods for ready meals

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?	\$6/300g (\$5-7/300g) \$20/kg (\$16-24/kg)
WHAT SORT OF PACK SIZE?	300g, 500g
WHAT PRODUCT FORM?	Ready meal, sauces
WHAT FORM OF PACKAGING?	Plastic, tamper evident seal or cardboard/paper seal
WHAT MARGINS WILL THE RETAILER TAKE?	35% (30-40%) of retail selling price
WHAT SORT OF PROFITABILITY?	EBITDA \$0.60/unit (\$0.30-0.90/unit) @10% of retail price (5-15%)

WHAT ARE THE POTENTIAL INGREDIENTS?

Meat, fish, eggs, oils, oats, quinoa, corn, tapioca peppers, eggplant, ginger, green beans, kale, carrots potatoes, zucchini, green onion

WHAT ARE THE KEY CHANNELS?

Supermarkets	✓✓✓✓
Pharmacy/Chemist	✓
Online	✓✓
Direct sales	✓✓✓
Duty Free	-
Daigou	-

WHO IS THE COMPETITION?

Smaller, regional firms

WHAT COULD IT LOOK LIKE?



LOW FODMAP READY MEALS TARGETING IBS*

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD	
IBS Gut Health		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO	SUPPLY CHAIN
	The Nutritionist Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Does or could grow in WA <div></div>
	The Doctor Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Strength in inputs <div></div>
WHAT DO THE EXPERTS SAY?		WHAT'S IN IT FOR WESTERN AUSTRALIA?					Capabilities across the chain <div></div>
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?		HOW CAN WA FARMERS PARTICIPATE?					Clear partners <div></div>
<ul style="list-style-type: none">Short-chain carbs are resistant to digestion and reach your gut, ferment and feed your gut bacteria, producing gas and causing digestive symptoms in sensitive people.Low Fodmap foods do not do this, thereby reducing bloating, stomach cramps, diarrhea etc.		<ul style="list-style-type: none">Grow vegetables and meats that are low Fodmap					PRIMARY SECTOR
WHAT DOES THE NUTRITIONIST SAY?		HOW CAN WA SCIENTISTS PARTICIPATE?					Mechanically harvested <div></div>
We are what we eat, and diet and specific foods can have a big impact on people with sensitive stomachs; it needs a process of elimination to determine key irritants		<ul style="list-style-type: none">Continue research into Low Fodmap diets on gut issues					High performance genetics available <div></div>
WHAT DOES THE DOCTOR SAY?		WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					Proven, scalable production model <div></div>
A low Fodmap diet is part of a solution for IBS.		WA grown ingredients Potential to develop patented food combinations WA has firms that can produce ready meals Trusted source/Safe supply					Required skills for success <div></div>
							PRODUCT CHARACTERISTICS
							Drought tolerant <div></div>
							Low input production <div></div>
							Wide range of uses <div></div>
							Full product utilisation <div></div>
							Indigenous knowledge <div></div>
							OVERALL <div></div>

S* IBS = Irritable Bowel Syndrome; Source: Company websites, articles, publications, reports; Coriolis research and analysis

TABLE OF CONTENTS

page 7	page 17	page 54	page 75	page 105	page 133
<i>Context, Markets and Process</i>	<i>Conditions, Concepts and Challenges</i>	<i>Health Focused Dairy/Alternative Dairy</i>	<i>Oat Extracts</i>	<i>Plant Proteins</i>	<i>Medical/Health Focused Ready Meals</i>
page 161	page 205	page 233	page 262	page 337	page 357
<i>Botanical Waste Streams</i>	<i>Meat Extracts</i>	<i>Bushcrop Extracts</i>	<i>Other Opportunities</i>	<i>Appendix I Markets & Conditions Details</i>	<i>Appendix II Implementation Plan</i>

Why botanical waste streams? Because there is a large supply of available raw material

“Food processing operations generate a significant amount of waste, which often ends up in landfills, causing environmental sustainability issues. According to the U.S. EPA, about 38 million tons of food waste was disposed of in landfills in 2014 in the United States (US EPA, 2018). This is problematic for a number of reasons, including potential environmental concerns, lost nutrients and energy that could have been used to feed a growing population, and increasing waste disposal costs. Process wastes represent a potentially large economic opportunity for many industries. In many cases, waste streams contain valuable components. If some of that value can be extracted, separated, or transformed, then a waste liability can be turned into an asset.”



“To what extent can I obtain higher value for my waste streams and, at the same time, contribute to a circular economy? is a question that concerns many businesses and governments... Side streams from agrifood production are full of valuable components, for which many surprising applications are possible.”



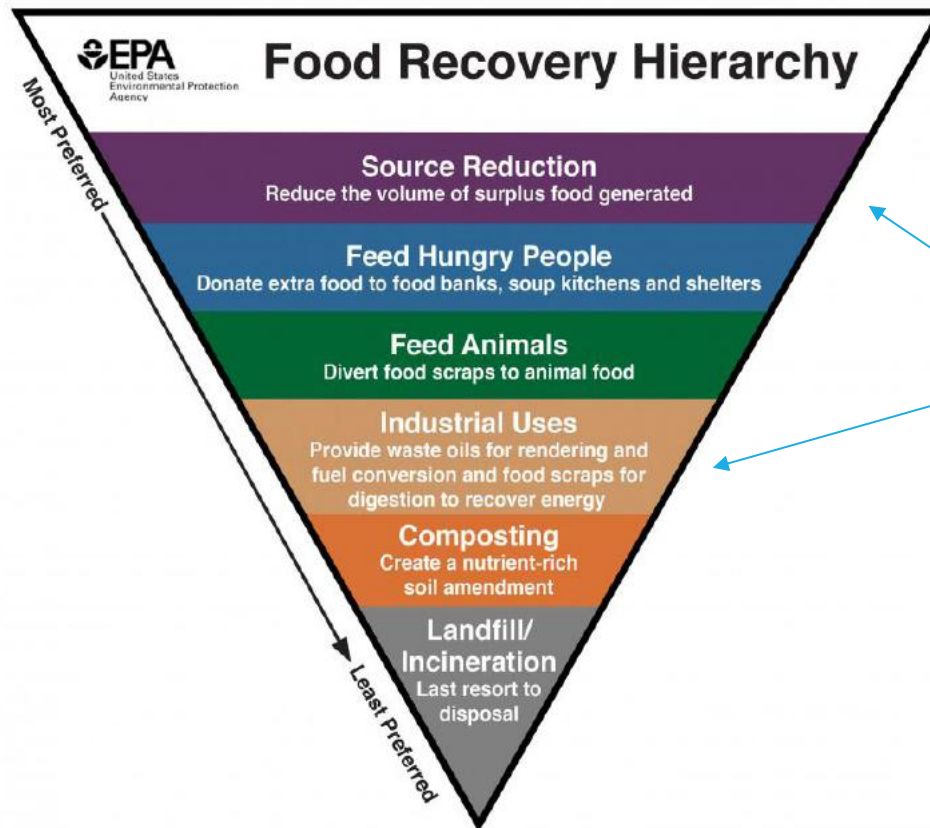
“The most preferable option to reduce the impact on the environment is to reduce the amount of raw materials, ingredients and product ending up as waste – such actions may involve system mapping to understand, measure and re-design processes to eliminate waste. Examples are vegetable off-cuts being utilised as input to a juicing process [or soup production line].”



“Waste fractions of food processing are promising sources of polyphenols, which are of high demand because of their favourable bioactivities... Polyphenols are highly demanded compounds as e.g. additives for functional food due to their antioxidant, antimicrobial and anti-inflammatory potential. More recently, the overall beneficial influence on the gut microbiota and by that on their metabolic activity is under investigation. The processing of polyphenol-containing waste streams from food processing represents a resource-efficient and sustainable source of polyphenol-enriched fraction.”



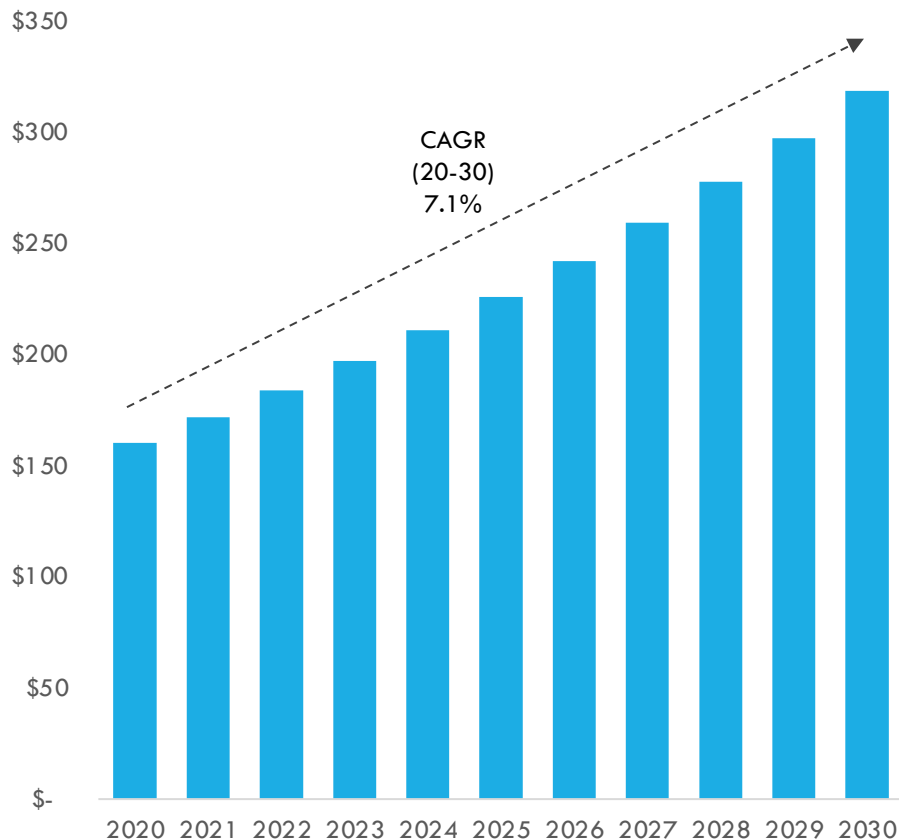
Adding value to existing botanical waste streams in Western Australia acts to prevent and divert waste



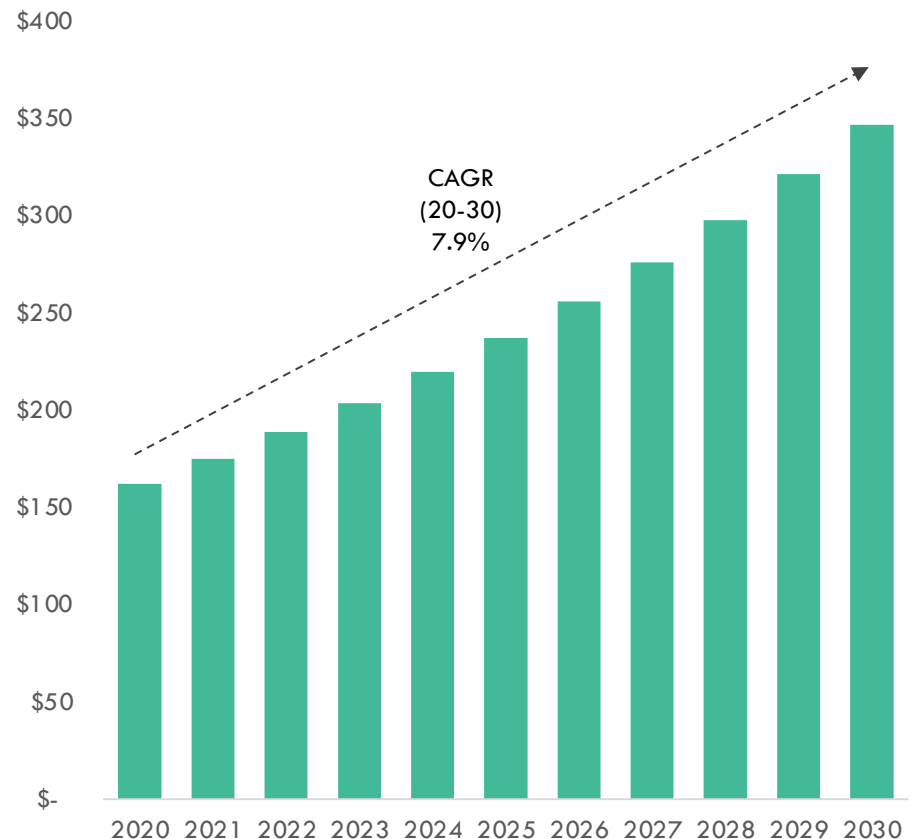
Adding value to existing botanical waste streams at two stages

Both nutraceuticals and functional foods are forecast to grow strongly over the next decade

GLOBAL NUTRACEUTICALS MARKET VALUE US\$, b; 2020-2030



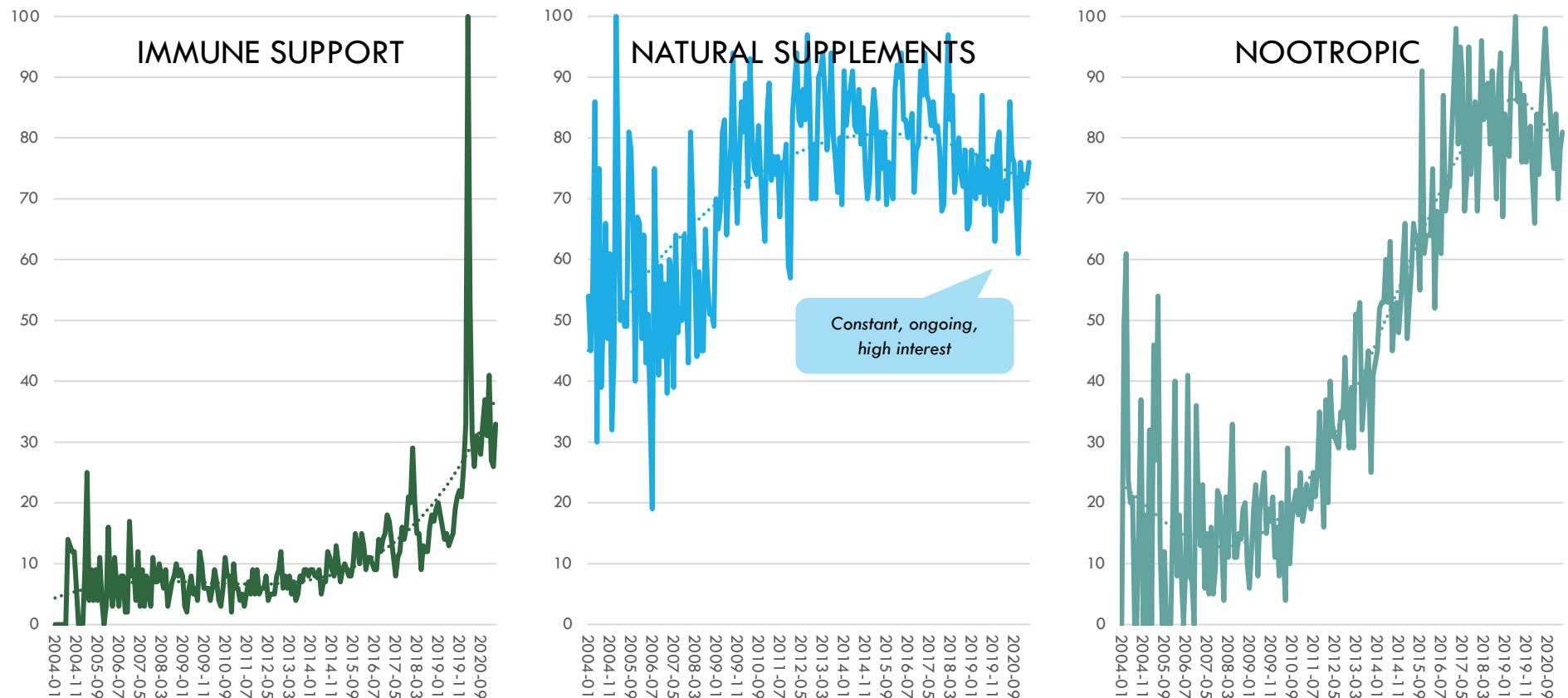
GLOBAL FUNCTIONAL FOODS VALUE US\$, b; 2020-2030



Global interest in natural health supplements is increasing, particularly since COVID

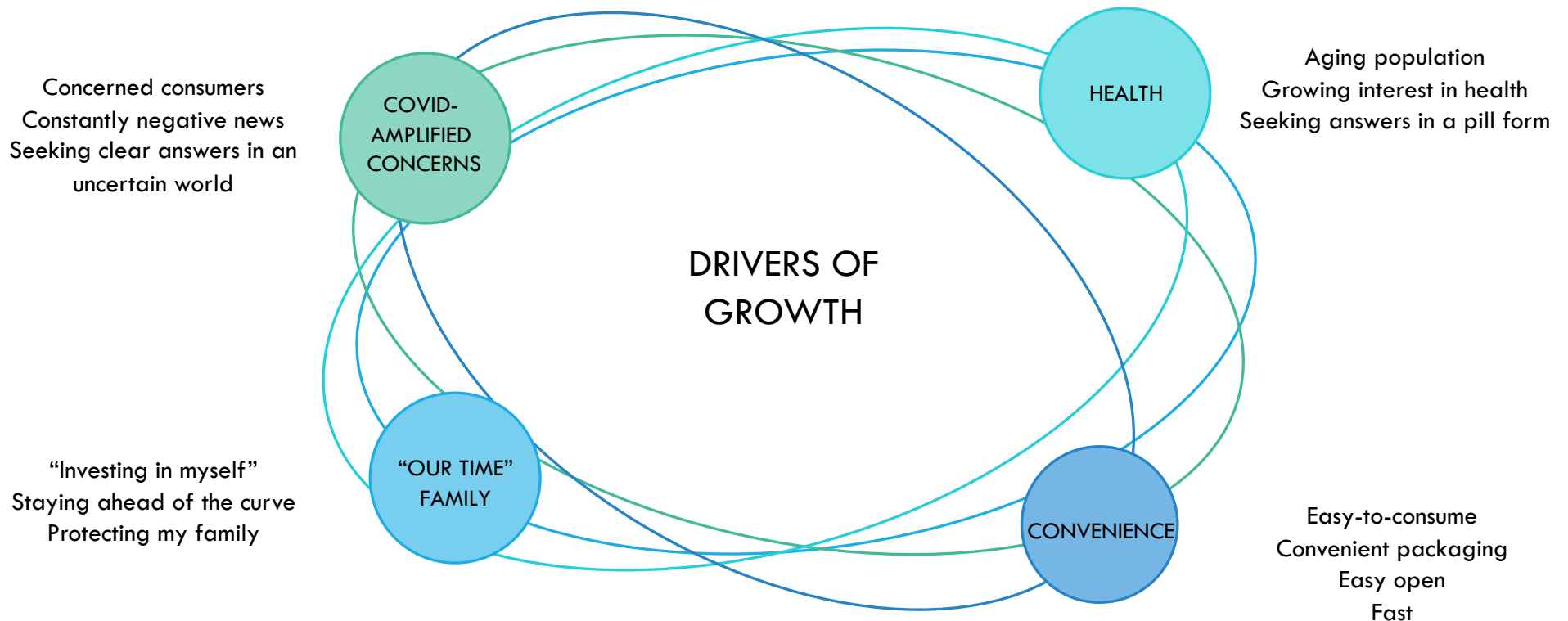
17Y WORLDWIDE GOOGLE TRENDS SELECT SEARCH INTEREST INDEX OVER TIME*

Relative index; 2004-2020



NOTE: Numbers represent search interest relative to the highest point on the chart for the given region and time. A value of 100 is the peak popularity for the term. A value of 50 means that the term is half as popular. Source: Google Trends; Coriolis analysis

Global growth is coming from solid, long term drivers



How could we do it?

STRAWMAN FOR DISCUSSION

VISION:

Western Australia builds a nutraceuticals sector delivering healthy supplements with a differentiated brand position leveraging the unique properties of Brand WA

1

Identification and sizing of all existing botanical-derived waste streams by region

Identification of existing in-place extraction capabilities in WA; what new equipment (if any) is required?

Create a “coalition of the willing” to take to opportunity forward

2

Develop first product with most available, underutilised waste first (e.g. grape seed?)

Extend range based on waste volumes and market demand

Identify a science and research agenda to develop more differentiated products

3

Consider selling both bulk raw material to others and developing a WA unique brand

Build market, initially targeting Australia, followed by developed Asia

What sort of products are we suggesting?

EXAMPLES OF JUST SOME OF THE MANY SUPPLEMENTS EFFECTIVELY DERIVED FROM WASTE STREAMS



Grape
Seed
Extract



Olive
Leaf
Extract



Artichoke
Leaf
Extract



Citrus
Extract



Yeast
Extract



Mulberry
Leaf
Extract



Berry
Extract



Pomegranate
Extract

What is the development pathway?

CURRENT

Higher complexity
More science required
Greater capabilities needed



STAGE I

Liquid concentrates & extracts



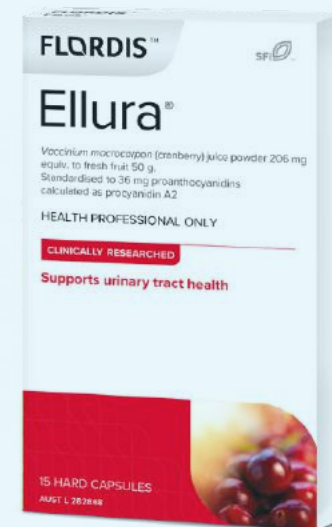
STAGE II

Product form extension
(e.g. capsules, powder)



STAGE III

Ranges making specific
claims against health concerns



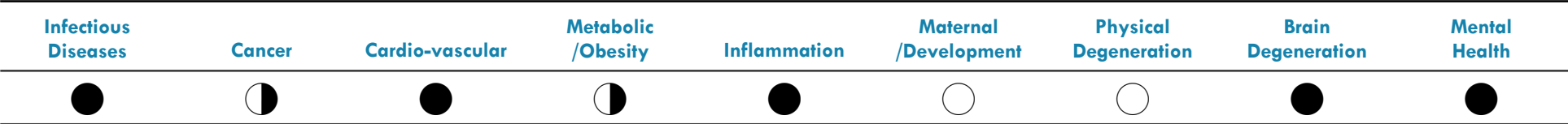
STAGE IV

"Doctor/Hospital Ready" medical
products suited to specific
conditions

The botanical waste stream-based supplement platform delivers solutions to a wide range of conditions

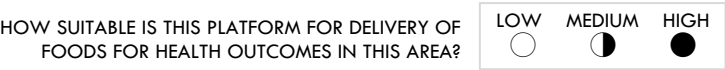
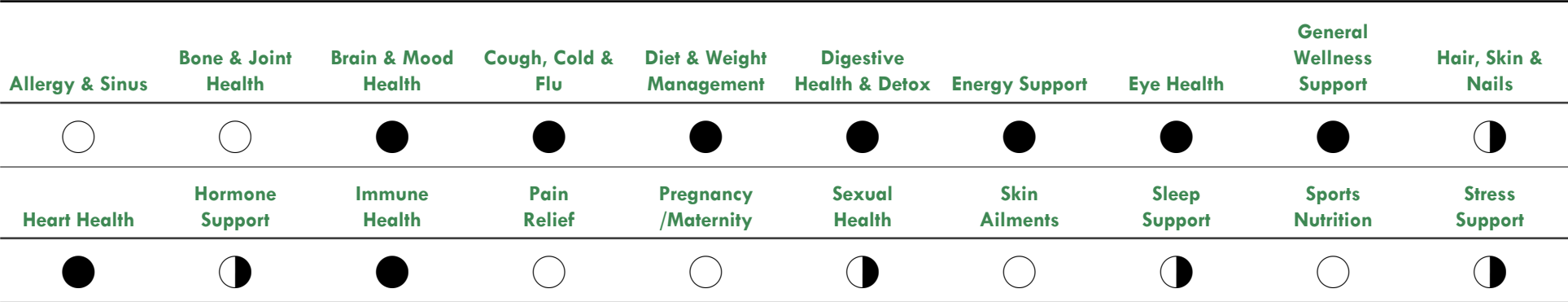
MEDICAL

WHICH BROAD CATEGORIES (FROM A MEDICAL POINT-OF-VIEW) CAN BE TARGETED WITH THIS PLATFORM?



RETAIL

WHICH BROAD CATEGORIES (FROM A RETAIL POINT-OF-VIEW) CAN BE TARGETED WITH THIS PLATFORM?



Western Australian botanical extracts are well positioned to execute on and deliver key trends

CORIOLIS FOOD & BEVERAGE TRENDScopeSM

TIME SAVING	FAST	EASY OPEN	SOCIAL	INSTA READY	PICTURESQUE
HASSLE FREE	SIMPLIFIES	EASY	REWARDS	FARM TOUR	FUN
LOW EFFORT	CONVENIENCE	RANGE	CONNECTIONS	INVOLVEMENT	ARTISAN
SOLUTIONS	READY TO COOK	READY TO EAT/USE	HAND CRAFTED	SMALL BATCH	SENSORY
MICROWAVE	REUSABLE	STORY TELLING	AUTHENTIC	CELLAR DOOR	AGED
SUPERIOR	RICH FLAVOUR	SPECIAL EDITION	TRADITIONAL	RESPONSIBLE	FAMILY OWNED
DISTINCT	PROMOTED	SPONSOR	CERTIFIED	HEIRLOOM	FAIR TRADE
ENDORSED	PREMIUM	ADVERTISED	PROTECTED	STEWARDSHIP	TRADE AID
FAMOUS	AWARD WINNING	"ESTATE" GROWN	LIFE CYCLE	TRACEABLE	ETHICAL
QUALITY	EXPENSIVE	RARE/UNIQUE	SOCIALLY AWARE	INDIGENOUS	FREE RANGE
LOW FAT	LOW CARB	TRUSTED	LOCAL	NATIVE CROPS	GRASS FED
PROTEIN	FREE FROM	NO HORMONES	LOW INPUT	CARBON ZERO	EARTH FRIENDLY
NUTRACEUTICAL	HEALTH	NATURAL	ECOLOGICAL	SUSTAINABLE	LOW WATER USE
THERAPEUTIC	CHEMICAL FREE	PLANT BASED	BEE FRIENDLY	NITROGEN FIXING	ORGANIC
MEDICINAL	WELLNESS	PALEO	RENEWABLE	BIODYNAMIC	REGENERATIVE



Inherent characteristics

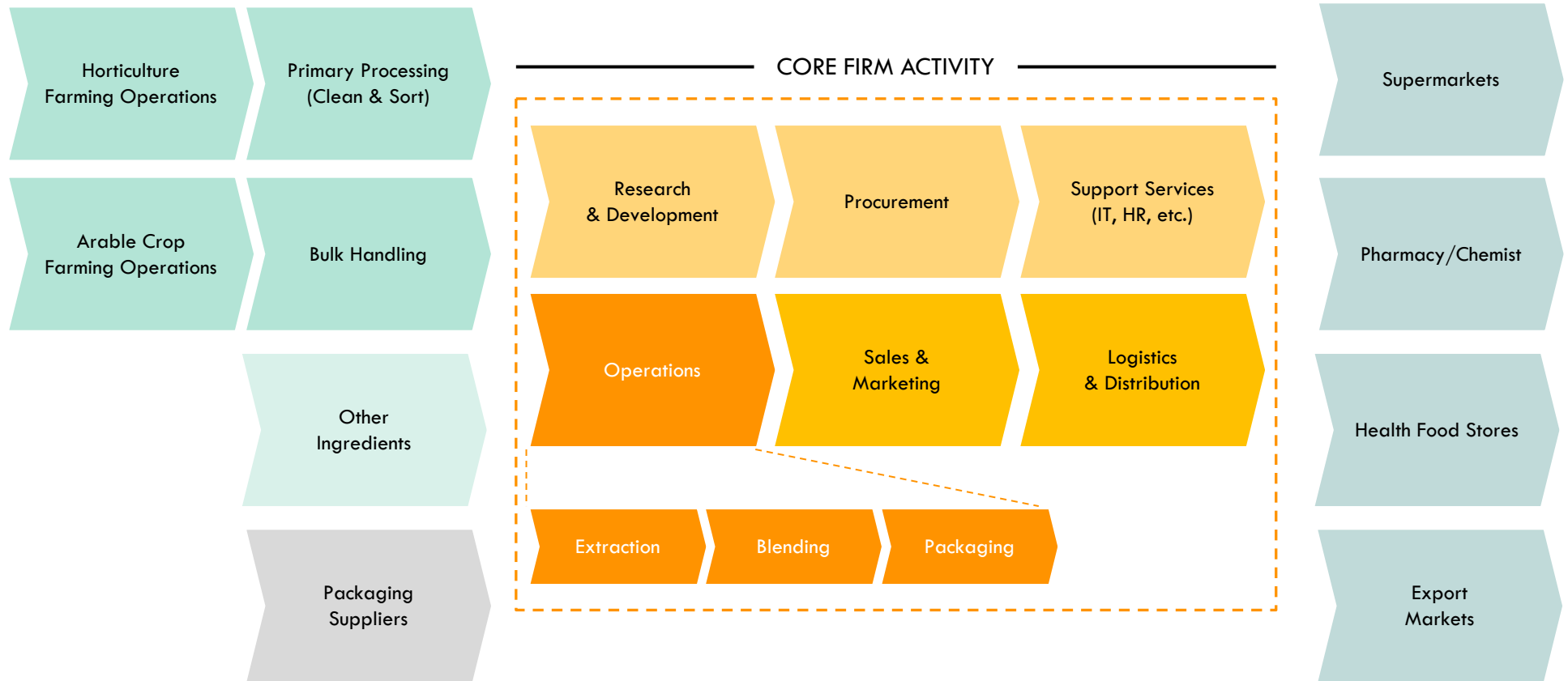


Need to develop



Optional extras

How would the value chain be organised?

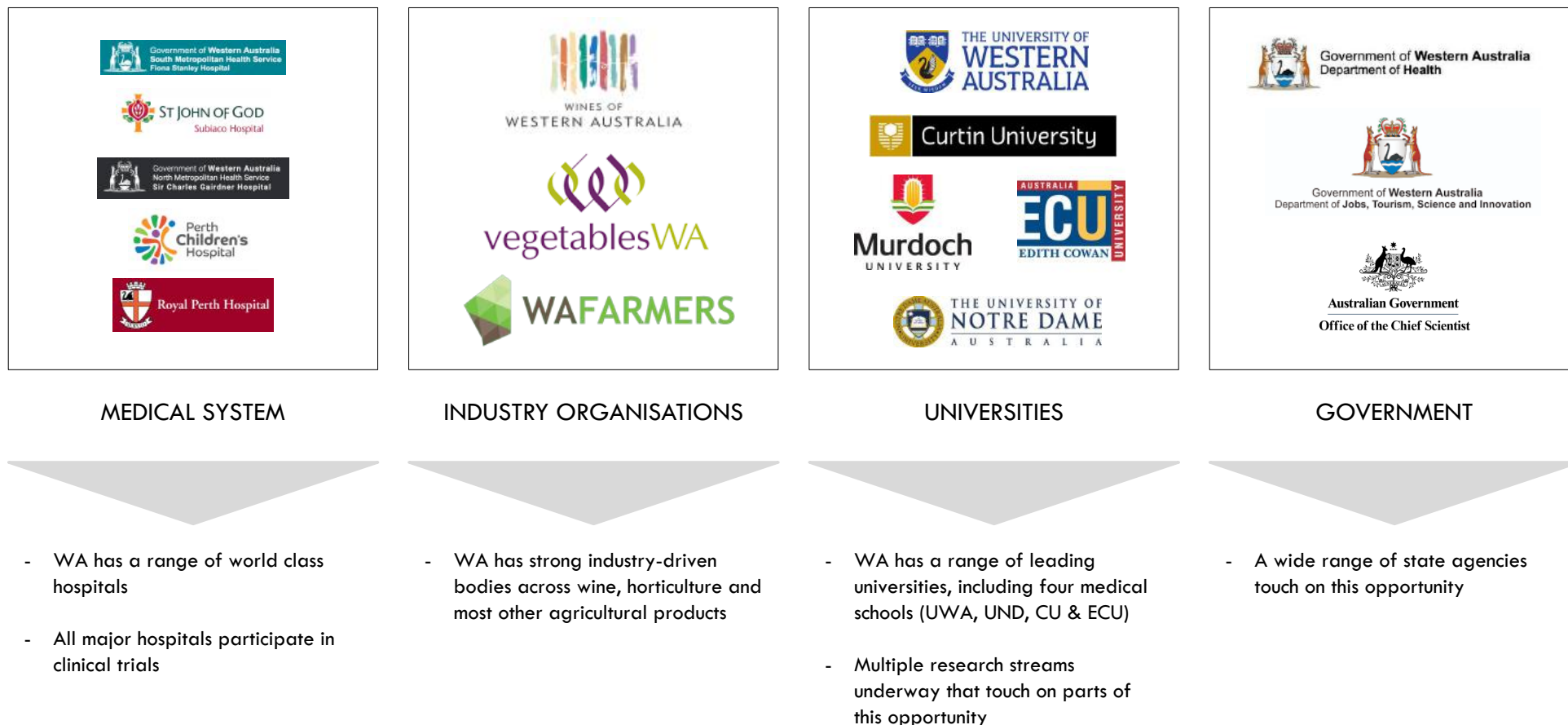


Who are the high potential commercial partners for this opportunity?

		 Numerous others...		
Firm	SUMICH	WINEMAKERS	FOLEY'S FROTHING	BIODYNAMIC WELL-BEING
Relevant product categories	Carrots, onions, celery Other horticulture Olive-based products	Wine	Fermented foods Fermented drinks Other foods	Fermented foods Fermented drinks Other foods

				
Firm	ROK KOMBUCHA	BASF	LITTLE GREEN PHARMA	PERRIGO AUSTRALIA
Relevant product categories	Fermented beverages	Chemicals Organic compounds β -carotene (in WA)	Medical grand cannabis products	Pharmaceuticals Supplements Other healthcare

Who are the other key stakeholders?



Where is investment required?

1

INVESTING IN **NEW PRODUCT DEVELOPMENT**

- While clear global models exist, products are conceptual at this point
- Significant work needs to be undertaken to the initial finished consumer offer

2

INVESTING IN DEMONSTRATING THE **EFFICACY OF FUNCTIONAL INGREDIENTS**

- Solid evidence is required before specific, targeted health claims can be made
- Alternatively, initial products can leverage proven ingredients with accepted claims

3

INVESTING IN REQUIRED **EXTRACTION, PROCESSING & PACKAGING**

- Stocktake required on existing on-the-ground extraction, processing and packaging suited to this opportunity
- Depending on the coalition that develops around this concept, additional equipment will likely be required

What health-focused dairy/alternative dairy products emerged from Stage I of the screen?

VITAMIN C WITH APPLE
FLAVONOIDS

CAROB FIBRE TO REDUCE
CHOLESTEROL

HIGH BETA CAROTENE
CARROTS FOR
COGNITIVE FUNCTION

BERRIES FOR
NEURODEGENERATIVE
DISORDERS

HIGH BETA CAROTENE
CARROT POWDER TO
REDUCE OXIDATIVE
STRESS

RESVERATROL TO LOWER
BLOOD PRESSURE

RESVERATROL FOR
CELLULAR ANTI-AGING

RESVERATROL TO
SUPPRESS CANCER CELLS

BEETROOT POWDER FOR
HEART HEALTH/
CIRCULATION

AVOCADO SMOOTHIE
TO REDUCE HEART
DISEASE


RESISTANT STARCH
FROM GREEN BANANA
FOR GUT HEALTH

GLOBE ARTICHOKE LEAF
EXTRACT FOR LIVER
HEALTH/APPETITE
CONTROL

ACTIVATED CHARCOAL
FROM GRAIN WASTE
FOR GUT HEALTH

PLANT DERIVED
TERPENES FOR MOOD

VITAMIN C WITH APPLE FLAVONOIDS

WHAT IS THE CONCEPT?	Vitamin C with Bravo apple flavonoids to support immune health		WHAT COULD IT LOOK LIKE?
GIVE ME THE ELEVATOR PITCH	Vitamin C and Bioflavonoids with their high antioxidant levels may fight free radical damage – playing a part in heart disease and cancer, plus supporting the immune system. Product made from raw natural ingredients		
WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?		WHAT ARE THE KEY CHANNELS?	
WHAT SORT OF PRICING?	\$25/150 cap jar (\$24-36/jar) \$300/kg (\$240-360/kg)	Supermarkets	✓✓
WHAT SORT OF PACK SIZE?	30, 60, 100, 150 caps	Pharmacy/Chemist	✓✓✓✓
WHAT PRODUCT FORM?	Capsules, pills	Online	✓✓
WHAT FORM OF PACKAGING?	Plastic, tamper evident seal or cardboard/paper seal	Direct sales	-
WHAT MARGINS WILL THE RETAILER TAKE?	50% (45-55%) of retail selling price	Duty Free	-
WHAT SORT OF PROFITABILITY?	EBITDA \$3.75/unit (\$2.50-5.00/unit) @15% of retail price (10-20%)	Daigou	-
		WHO IS THE COMPETITON?	
WHAT ARE THE POTENTIAL INGREDIENTS?		Blackmores Healtheries Cenovis Swisse Numerous others	
			

VITAMIN C WITH APPLE FLAVONOIDS

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD
Weak immunities Heart disease Cancer		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO
	The Nutritionist Says	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	The Doctor Says	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					SUPPLY CHAIN
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?					Does or could grow in WA
<ul style="list-style-type: none"> Bioflavonoids and vitamin C have antioxidant power that protect cells from free radical damage Protection of cells from oxidative stress Assist collagen formation and normal function of the skin 	<ul style="list-style-type: none"> Bravo apples growing in SW WA Grow more Bravo apples Utilise waste stream from apples to maximise farm returns 					Strength in inputs
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					Capabilities across the chain
Many fruits and vegetables contain high levels of flavonoids. An apple a day keeps the doctor away.	<ul style="list-style-type: none"> Research role of apple flavonoids in combination with Vit C Clinical trials to document efficacy Role of raw ingredients 					Clear partners
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					PRIMARY SECTOR
Vitamin C is known to support immunity and flavonoids known for it's antioxidant potential, to the exact level for serious ailments is unknown.	WA grown ingredients IP controlled variety of Bravo developed IP controlled formulation Trusted source/Safe supply					Mechanically harvested
						High performance genetics available
						Proven, scalable production model
						Required skills for success
						PRODUCT CHARACTERISTICS
						Drought tolerant
						Low input production
						Wide range of uses
						Full product utilisation
						Indigenous knowledge
						OVERALL

CAROB FIBRE TO REDUCE CHOLESTEROL

WHAT IS THE CONCEPT?

A high fibre healthy cereal from carob to reduce cholesterol levels

GIVE ME THE ELEVATOR PITCH

Water soluble carob pulp fibre as an ingredient in breakfast cereal (or muesli bars) can reduce total cholesterol and low density lipoprotein (LDL) cholesterol reducing hypercholesterolemia

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?

\$8/425g box (\$6.40-9.60/box)
\$19/kg (\$15-23/kg)

WHAT SORT OF PACK SIZE?

100g, 200g, 450g

WHAT PRODUCT FORM?

Cereal ingredient, or health bar, drink

WHAT FORM OF PACKAGING?

Plastic bag, and cardboard box/paper seal

WHAT MARGINS WILL THE RETAILER TAKE?

35% (30-40%)
of retail selling price

WHAT SORT OF PROFITABILITY?

EBITDA \$0.80/unit (\$0.40-1.20/unit)
@10% of retail price (5-15%)

WHAT ARE THE KEY CHANNELS?

Supermarkets

✓✓

Pharmacy/Chemist

✓✓✓✓

Online

✓✓

Direct sales

-

Duty Free

-

Daigou

-

WHO IS THE COMPETITON?

Caromax,
National firms

WHAT ARE THE POTENTIAL INGREDIENTS?

carob fibre, wheat bran, whole wheat, Carob syrup, Natural flavouring, Vitamins and Minerals

WHAT COULD IT LOOK LIKE?



CAROB FIBRE TO REDUCE CHOLESTEROL

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD	
High Cholesterol Stomach Issues Prevents heart disease Prevents stroke		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO	SUPPLY CHAIN
	The Nutritionist Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Does or could grow in WA <div></div>
	The Doctor Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Strength in inputs <div></div>
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					Capabilities across the chain <div></div>	
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?					Clear partners <div></div>	
<ul style="list-style-type: none">High insoluble dietary fibre promotes digestionFibre provides breeding area for bacteriaHigh lignin content has positive effect on cholesterol metabolism – by absorbing bile acid and cholesterol	<ul style="list-style-type: none">Grow carob (current uses for pods, but limited for seed)Increase scale of carob operations					PRIMARY SECTOR	
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					Mechanically harvested <div></div>	
High fibre products are good for your gut and gut bacteria, it also reduces cholesterol	<ul style="list-style-type: none">Investigate methods of extraction to maintain high lignin levelsFurther investigate role of carob fibre in reducing cholesterol					High performance genetics available <div></div>	
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					Proven, scalable production model <div></div>	
Cholesterol is implicated in many chronic conditions. Any product that can produce high lignin levels is positive. More research is required.	WA grown ingredients Potential to develop IP controlled extraction Trusted source/Safe supply					Required skills for success <div></div>	
						PRODUCT CHARACTERISTICS	
						Drought tolerant <div></div>	
						Low input production <div></div>	
						Wide range of uses <div></div>	
						Full product utilisation <div></div>	
						Indigenous knowledge <div></div>	
						OVERALL <div></div>	

Source: Company websites, articles, publications, reports; Coriolis research and analysis

HIGH BETA CAROTENE CARROTS FOR COGNITIVE FUNCTION

WHAT IS THE CONCEPT?

Carrots with high beta carotene used in a drink taken long term for brain health

GIVE ME THE ELEVATOR PITCH

Reduced cognitive function and associated diseases like Alzheimer's disease are more common in the aging population. Carrots high in beta carotene may improve cognitive function due to antioxidant effects. WA has comparative advantage in growing carrots

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?

\$12.50/l (\$15-20/l)

WHAT SORT OF PACK SIZE?

300g, 500g, 750g, 1l

WHAT PRODUCT FORM?

Juice

WHAT FORM OF PACKAGING?

Glass bottle, sealed cap

WHAT MARGINS WILL THE RETAILER TAKE?

35% (30-40%)
of retail selling price

WHAT SORT OF PROFITABILITY?

EBITDA \$1.25/unit (\$0.60-1.90/unit)
@10% of retail price (5-15%)

WHAT ARE THE KEY CHANNELS?

Supermarkets

✓✓✓

Pharmacy/Chemist

✓✓✓✓

Online

✓✓

Direct sales

-

Duty Free

-

Daigou

-

WHO IS THE COMPETITON?

Smaller, regional firms

WHAT ARE THE POTENTIAL INGREDIENTS?

Carrots, orange, turmeric, lemon juice

WHAT COULD IT LOOK LIKE?



HIGH BETA CAROTENE CARROTS FOR COGNITIVE FUNCTION

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD	
Alzheimer's disease Memory loss Eye health Skin health		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO	SUPPLY CHAIN
	The Nutritionist Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Does or could grow in WA <div></div>
	The Doctor Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Strength in inputs <div></div>
WHAT DO THE EXPERTS SAY?		WHAT'S IN IT FOR WESTERN AUSTRALIA?					Capabilities across the chain <div></div>
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?		HOW CAN WA FARMERS PARTICIPATE?					Clear partners <div></div>
<ul style="list-style-type: none">Beta carotene has an antioxidant effect, reducing oxidative stress, a factor in cognitive declineBeta carotene converts into Vitamin A (retinol) an essential vitamin		<ul style="list-style-type: none">WA grows high volumes of carrots, waste streams can be converted into carrot juice products					PRIMARY SECTOR
WHAT DOES THE NUTRITIONIST SAY?		HOW CAN WA SCIENTISTS PARTICIPATE?					Mechanically harvested <div></div>
100gms of cooked carrot provides 8,279 mcg* of beta carotene		<ul style="list-style-type: none">Develop high beta carotene carrotsCompare WA based carrots for beta carotene levelsDevelop effective process to extract beta carotene from carrotsDevelop juice that maintains antioxidant levels					High performance genetics available <div></div>
WHAT DOES THE DOCTOR SAY?		WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					Proven, scalable production model <div></div>
We recommend eating a diet rich in fruits and vegetables, which are full of vitamins, minerals, and plant compounds that work together to support health over taking beta carotene supplements		WA grown ingredients Potential to develop IP controlled species Trusted source/Safe supply					Required skills for success <div></div>
							PRODUCT CHARACTERISTICS
							Drought tolerant <div></div>
							Low input production <div></div>
							Wide range of uses <div></div>
							Full product utilisation <div></div>
							Indigenous knowledge <div></div>
							OVERALL <div></div>

* mcg = microgram (one millionth of a gram); Source: Company websites, articles, publications, reports; Coriolis research and analysis

BERRIES FOR NEURODEGENERATIVE DISORDERS

WHAT IS THE
CONCEPT?

Concentrated berry powder capsule targeting neurodegenerative diseases and brain health

GIVE ME THE
ELEVATOR PITCH

Aging populations suffer from a range of neurodegenerative diseases. WA has the skills and capabilities to successfully grow and produce a range of products in this space

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF
PRICING?

\$30/60 cap jar (\$24-36/jar)
\$600/kg (\$500-700/kg)

WHAT SORT OF PACK
SIZE?

30, 60, 100 caps

WHAT PRODUCT FORM?

Capsules (or powder, tonic, drink)

WHAT FORM OF
PACKAGING?

Plastic, tamper evident seal
or cardboard/paper seal

WHAT MARGINS WILL
THE RETAILER TAKE?

50% (45-55%)
of retail selling price

WHAT SORT OF
PROFITABILITY?

EBITDA \$4.50/unit (\$3-6/unit)
@15% of retail price (10-20%)

WHAT ARE THE KEY CHANNELS?

Supermarkets

✓✓

Pharmacy/Chemist

✓✓✓✓

Online

✓✓

Direct sales

✓✓

Duty Free

-

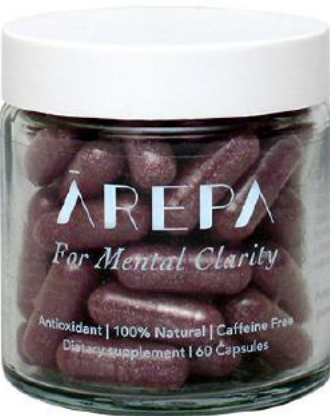
Daigou

-

WHO IS THE COMPETITON?

Swisse
Bioglan
Combata
Other national and regional brands

WHAT COULD IT LOOK LIKE?



WHAT ARE THE
POTENTIAL
INGREDIENTS?



Lilly Pilly (?) Blackcurrants, blueberries, blackberries, strawberries, L-theanine

BERRIES FOR NEURODEGENERATIVE DISORDERS

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD	
Parkinson's Disease Alzheimer's Disease Improving Memory		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO	SUPPLY CHAIN
	The Nutritionist Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Does or could grow in WA <div></div>
	The Doctor Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Strength in inputs <div></div>
WHAT DO THE EXPERTS SAY?		WHAT'S IN IT FOR WESTERN AUSTRALIA?					Capabilities across the chain <div></div>
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?		HOW CAN WA FARMERS PARTICIPATE?					Clear partners <div></div>
<ul style="list-style-type: none">Sources of antioxidants, phytochemicals in berry fruits (e.g., anthocyanin and caffeic acid) have a beneficial role in brain aging and neurodegenerative disorders because of their anti-oxidative, anti-inflammatory, anti-viral and anti-proliferative properties		<ul style="list-style-type: none">Farmers can grow small red berries to be used as supplements					PRIMARY SECTOR
WHAT DOES THE NUTRITIONIST SAY?		HOW CAN WA SCIENTISTS PARTICIPATE?					Mechanically harvested <div></div>
<i>Fruits high in antioxidants and natural polyphenols (flavonoids) like strawberries, bilberry, black currant, blackberry and mulberry will benefit the body and the brain.</i>		<ul style="list-style-type: none">Further research into flavonoids actions on cognitive function and declines in memory and learningResearch which berries are best at free radical actionResearch berries link between bioavailability and function of insulin-like growth factor-1 (IGF-1) for Parkinson's patients					High performance genetics available <div></div>
WHAT DOES THE DOCTOR SAY?		WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					Proven, scalable production model <div></div>
<i>Oxidative stress and inflammation appear to be involved in brain aging and in neurodegenerative diseases</i>		WA grown ingredients Potential to develop IP controlled bacteria Trusted source/Safe supply					Required skills for success <div></div>
PRODUCT CHARACTERISTICS							
Drought tolerant <div></div>							
Low input production <div></div>							
Wide range of uses <div></div>							
Full product utilisation <div></div>							
Indigenous knowledge <div></div>							
OVERALL <div></div>							

HIGH BETA CAROTENE CARROT POWDER TO REDUCE OXIDATIVE STRESS

WHAT IS THE CONCEPT?	Carrots with high beta carotene levels powder to use as a supplement to prevent cancer and heart disease			WHAT COULD IT LOOK LIKE?
GIVE ME THE ELEVATOR PITCH	Cancer and heart disease is increasing globally, high vegetable intake is known to reduce oxidative stress – often leading to cancers and heart disease			
WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?		WHAT ARE THE KEY CHANNELS?		
WHAT SORT OF PRICING?	\$25/200g (\$20-30/200g) \$125/kg (\$100-150/kg)	Supermarkets	✓✓	
WHAT SORT OF PACK SIZE?	150g, 200g, 500g	Pharmacy/Chemist	✓✓✓✓	
WHAT PRODUCT FORM?	Dry Powder	Online	✓✓	
WHAT FORM OF PACKAGING?	Plastic, tamper evident seal or glass with metal cap	Direct sales	-	
WHAT MARGINS WILL THE RETAILER TAKE?	45% (40-50%) of retail selling price	Duty Free	-	
WHAT SORT OF PROFITABILITY?	EBITDA \$3.00/unit (\$1.80-4.30/unit) @12% of retail price (7-17%)	Daigou	-	
		WHO IS THE COMPETITON?		
		Smaller, regional firms		
WHAT ARE THE POTENTIAL INGREDIENTS?	Carrots			





HIGH BETA CAROTENE CARROT POWDER TO REDUCE OXIDATIVE STRESS

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD
Cancer Heart disease		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO
	The Nutritionist Says	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
	The Doctor Says	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					SUPPLY CHAIN
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?					Does or could grow in WA
<ul style="list-style-type: none"> Beta carotene, like all carotenoids, is an antioxidant, a substance that inhibits the oxidation of other molecules; it protects the body from free radicals. Free radicals damage cells through oxidation. Eventually, the damage caused by free radicals can cause several chronic illnesses. 	<ul style="list-style-type: none"> WA grows high volumes of carrots, waste streams and rejected carrots can be dried and turned into powder 					Strength in inputs
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					Capabilities across the chain
100gms of cooked carrot provides 8,279 mcg* of beta carotene, many vegetables like sweet potato are also high in beta carotene	<ul style="list-style-type: none"> Develop high beta carotene carrots Compare WA based carrots for beta carotene levels Develop effective process to dry and powder carrots that maintains high nutritional levels 					Clear partners
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					PRIMARY SECTOR
The direct link between...	WA grown ingredients Potential to develop IP controlled varieties Trusted source/Safe supply					Mechanically harvested
						High performance genetics available
						Proven, scalable production model
						Required skills for success
						PRODUCT CHARACTERISTICS
						Drought tolerant
						Low input production
						Wide range of uses
						Full product utilisation
						Indigenous knowledge
						OVERALL

* mcg = microgram (one millionth of a gram); Source: Company websites, articles, publications, reports; Coriolis research and analysis

RESVERATROL TO LOWER BLOOD PRESSURE

WHAT IS THE CONCEPT?

Resveratrol found in red wine and grapes is suggested to lower lower blood pressure (high blood pressure is a factor leading to hear disease)

GIVE ME THE ELEVATOR PITCH

The rise of cardiovascular diseases has stimulated research into products like Resveratrol. A plant compound found in red wine, grapes, berries and peanuts, that acts like an anti-oxidant and is studied for it's potential to improve cardiovascular health and lower blood pressure.

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?	\$25/80 cap jar (\$20-30/jar) \$370/kg (\$300-450/kg)
WHAT SORT OF PACK SIZE?	60, 80, 110 caps
WHAT PRODUCT FORM?	Capsule
WHAT FORM OF PACKAGING?	Plastic, tamper evident seal
WHAT MARGINS WILL THE RETAILER TAKE?	50% (45-55%) of retail selling price
WHAT SORT OF PROFITABILITY?	EBITDA \$3.75/unit (\$2.50-5.00/unit) @15% of retail price (10-20%)

WHAT ARE THE KEY CHANNELS?

Supermarkets	✓✓
Pharmacy/Chemist	✓✓✓✓
Online	✓✓✓
Direct sales	✓✓
Duty Free	-
Daigou	-

WHO IS THE COMPETITON?

Healthy Care
Thompsons
Nature's Way
Other national and regional firms

WHAT ARE THE POTENTIAL INGREDIENTS?

Resveratrol (100-1,000mg/cap) from grape seed, grape skin

WHAT COULD IT LOOK LIKE?



RESVERATROL TO LOWER BLOOD PRESSURE

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD	
High Blood Pressure Cardiovascular disease Anti-cancer Anti-inflammatory Anti-aging Breast cancer		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO	SUPPLY CHAIN
	The Nutritionist Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Does or could grow in WA <div></div>
	The Doctor Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Strength in inputs <div></div>
							Capabilities across the chain <div></div>
							Clear partners <div></div>
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					PRIMARY SECTOR	
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?					MECHANICALLY HARVESTED	
<ul style="list-style-type: none">Resveratrol is a polyphenolic compound which may help reduce pressure exerted on artery walls when the heart beats (systolic blood pressure), by helping to produce more nitric oxide, which causes the vessels to relax	<ul style="list-style-type: none">Grape skin and seed byproduct used from wine industry to manufacture resveratrol					High performance genetics available <div></div>	
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					PROVEN, SCALABLE PRODUCTION MODEL	
Resveratrol is found in many plants in low concentrations. Any real benefit would require a supplement.	<ul style="list-style-type: none">Ongoing trials into impact of resveratrol on reducing systolic blood pressureResearch into best extraction process					Required skills for success <div></div>	
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					PRODUCT CHARACTERISTICS	
Resveratrol has a number of underlying health benefits in high concentrations, limited scientific evidence to support lowering blood pressure.	WA grown ingredients Potential to develop IP controlled extraction Trusted source/Safe supply					Drought tolerant <div></div>	
						Low input production <div></div>	
						Wide range of uses <div></div>	
						Full product utilisation <div></div>	
						Indigenous knowledge <div></div>	
						OVERALL <div></div>	

Source: Company websites, articles, publications, reports; Coriolis research and analysis

RESVERATROL FOR CELLULAR ANTI-AGING

WHAT IS THE CONCEPT?	Resveratrol found in red wine and grapes maintains cellular health and activates the longevity gene
GIVE ME THE ELEVATOR PITCH	Age-related diseases have a major impact on global health, naturally occurring resveratrol compounds may activate certain genes to ward off the diseases of aging. WA has the ability to utilise byproducts from the wine industry to manufacture resveratrol.

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?		WHAT ARE THE KEY CHANNELS?	
WHAT SORT OF PRICING?	\$25/80 cap jar (\$20-30/jar) \$370/kg (\$300-450/kg)	Supermarkets	✓✓
WHAT SORT OF PACK SIZE?	60, 80, 110 caps	Pharmacy/Chemist	✓✓✓✓
WHAT PRODUCT FORM?	Capsule	Online	✓✓✓
WHAT FORM OF PACKAGING?	Plastic, tamper evident seal	Direct sales	✓✓✓
WHAT MARGINS WILL THE RETAILER TAKE?	50% (45-55%) of retail selling price	Duty Free	-
WHAT SORT OF PROFITABILITY?	EBITDA \$3.75/unit (\$2.50-5.00/unit) @15% of retail price (10-20%)	Daigou	-
		WHO IS THE COMPETITON?	
		National firms Smaller, regional firms	

WHAT ARE THE POTENTIAL INGREDIENTS?	Resveratrol (100-1,000mg/cap) from grape seed, grape skin, Japanese knotweed, quercetin
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WHAT COULD IT LOOK LIKE?



RESVERATROL FOR CELLULAR ANTI-AGING

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD	
High Blood Pressure Cardiovascular disease Anti-cancer Anti-inflammatory Anti-aging Breast cancer		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO	SUPPLY CHAIN
	The Nutritionist Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Does or could grow in WA <div></div>
	The Doctor Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Strength in inputs <div></div>
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?						Capabilities across the chain <div></div>
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?						Clear partners <div></div>
<ul style="list-style-type: none">Resveratrol is a polyphenolic compound which may activate the gene sirtuin1 (SIRT1) which is also activated during calorie restriction; STAC's* activate SIRT1 in vitro by lowering its peptide Michaelis constant (KM) and produce pharmacological changes consistent with SIRT1 activation	<ul style="list-style-type: none">Grape skin and seed byproduct used from wine industry to manufacture resveratrol						PRIMARY SECTOR
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?						Mechanically harvested <div></div>
Resveratrol is found in many plants in low concentrations. Any real benefit would require a supplement.	<ul style="list-style-type: none">Ongoing trials into impact of resveratrol on anti-aging activity in humans vs other animalsResearch into best extraction processResearch ways for resveratrol to be easily absorbedResearch dosage requirements (currently large range)						High performance genetics available <div></div>
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?						Proven, scalable production model <div></div>
Resveratrol has a number of underlying health benefits in high concentrations, research shows lengthened lifespan in animals, however more human studies are required	WA grown ingredients Potential to develop IP controlled extraction Trusted source/Safe supply						Required skills for success <div></div>
							PRODUCT CHARACTERISTICS
							Drought tolerant <div></div>
							Low input production <div></div>
							Wide range of uses <div></div>
							Full product utilisation <div></div>
							Indigenous knowledge <div></div>
							OVERALL <div></div>

* STAC = sirtuin-activating compounds; Source: Company websites, articles, publications, reports; Coriolis research and analysis

RESVERATROL TO SUPPRESS CANCER CELLS

WHAT IS THE CONCEPT?	Resveratrol found in red wine and grapes may suppress cancer cells		
GIVE ME THE ELEVATOR PITCH	Cancer is a unresolved global medical challenge, Resveratrol may impact cancer stem cells, inhibit cell growth, change gene expression and impact hormones relating to (gastric, colon, skin, breast and prostate) cancer. WA has the skills to deliver a product to market.		
WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?		WHAT ARE THE KEY CHANNELS?	
WHAT SORT OF PRICING?	\$25/80 cap jar (\$20-30/jar) \$370/kg (\$300-450/kg)	Supermarkets	✓
WHAT SORT OF PACK SIZE?	60, 80, 110 caps	Pharmacy/Chemist	✓✓✓✓
WHAT PRODUCT FORM?	Capsule	Online	✓✓✓
WHAT FORM OF PACKAGING?	Plastic, tamper evident seal	Direct sales	✓✓✓
WHAT MARGINS WILL THE RETAILER TAKE?	50% (45-55%) of retail selling price	Duty Free	-
WHAT SORT OF PROFITABILITY?	EBITDA \$3.75/unit (\$2.50-5.00/unit) @15% of retail price (10-20%)	Daigou	-
		WHO IS THE COMPETITON?	
		National firms Smaller, regional firms	
WHAT ARE THE POTENTIAL INGREDIENTS?	Resveratrol (100-1,000mg/cap) from grape seed, grape skin, Japanese knotweed, quercetin		

WHAT COULD IT LOOK LIKE?



RESVERATROL TO SUPPRESS CANCER CELLS

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD	
High Blood Pressure Cardiovascular disease Anti-cancer Anti-inflammatory Anti-aging Cancer		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO	SUPPLY CHAIN
	The Nutritionist Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Does or could grow in WA <div></div>
	The Doctor Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Strength in inputs <div></div>
							Capabilities across the chain <div></div>
							Clear partners <div></div>
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					PRIMARY SECTOR	
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?					Mechanically harvested <div></div>	
<ul style="list-style-type: none">Resveratrol has strong antioxidant properties, plus a role in targeting cellular signaling pathways needed for cancer to initiate.	<ul style="list-style-type: none">Grape skin and seed byproduct used from wine industry to manufacture resveratrol					High performance genetics available <div></div>	
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					Proven, scalable production model <div></div>	
<i>Resveratrol is found in many plants in low concentrations. Any real benefit would require a supplement, it's unknown how much is too much or not enough</i>	<ul style="list-style-type: none">Ongoing trials into impact of resveratrol cancerResearch into best extraction processResearch ways for resveratrol to be easily absorbedResearch dosage requirements (currently large range)					Required skills for success <div></div>	
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					PRODUCT CHARACTERISTICS	
<i>Resveratrol has a number of underlying health benefits in high concentrations, research into cancer treatments looks positive, but there are lot of unknowns and much more research is required</i>	WA grown ingredients Potential to develop IP controlled extraction Clinical trials Trusted source/Safe supply					Drought tolerant <div></div>	
						Low input production <div></div>	
						Wide range of uses <div></div>	
						Full product utilisation <div></div>	
						Indigenous knowledge <div></div>	
						OVERALL <div></div>	

* STAC = sirtuin-activating compounds; Source: Company websites, articles, publications, reports; Coriolis research and analysis

BEETROOT POWDER FOR HEART HEALTH/CIRCULATION

WHAT IS THE CONCEPT?	Flavoured beetroot powder to improve circulation
GIVE ME THE ELEVATOR PITCH	Beets are natural, safe, and proven to help increase the nitric oxide production in the body that helps boost circulation.

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?		WHAT ARE THE KEY CHANNELS?	
WHAT SORT OF PRICING?	\$45/330g (\$40-50/330g) \$100-160/kg	Supermarkets	✓
WHAT SORT OF PACK SIZE?	330g	Pharmacy/Chemist	✓✓✓✓
WHAT PRODUCT FORM?	Powder	Online	✓✓✓✓
WHAT FORM OF PACKAGING?	Plastic tub; tamper evident foil seal	Direct sales	✓
WHAT MARGINS WILL THE RETAILER TAKE?	45% (40-50%) of retail selling price	Duty Free	-
WHAT SORT OF PROFITABILITY?	EBITDA \$5.40/tub (\$3-7/tub) @12% of retail price	Sports nutrition stores	✓✓✓✓
		WHO IS THE COMPETITION?	
		Beetroot in pill form Imports	

WHAT ARE THE POTENTIAL INGREDIENTS?	Beet root powder, fermented beet root powder, guar gum, citric acid, natural berry flavours, rebaudioside-A, silica
-------------------------------------	---

WHAT COULD IT LOOK LIKE?



BEETROOT POWDER FOR HEART HEALTH/CIRCULATION

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD	
Cardiovascular system		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO	
	The Nutritionist Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	
	The Doctor Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					SUPPLY CHAIN	
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?						Does or could grow in WA
<ul style="list-style-type: none">Contains naturally occurring nitric acid.Nitric oxide is a substance your body naturally produces. It signals blood vessels to widen, allowing blood to flow through freely.	<ul style="list-style-type: none">Produce beetrootProduce other “heart friendly” plants (e.g. chokeberries)						Strength in inputs
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					Capabilities across the chain	
<p>Why wouldn't you just incorporate fresh beetroot regularly into your diet? It goes great in salads.</p>	<ul style="list-style-type: none">Further research on the health benefits of beetrootResearch into foods promoting cardiovascular healthBreeding for improved strains of beetroot					Clear partners	
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					PRIMARY SECTOR	
<p>I'm unsure that eating nitric acid increases your body's production of nitric acid (or that this gets in the blood stream).</p>	<p>WA grown ingredients</p> <p>Potential to develop IP controlled bacteria</p> <p>Trusted source/Safe supply</p>					Mechanically harvested	
						High performance genetics available	
						Proven, scalable production model	
						Required skills for success	
						PRODUCT CHARACTERISTICS	
						Drought tolerant	
						Low input production	
						Wide range of uses	
						Full product utilisation	
						Indigenous knowledge	
						OVERALL	

Source: Company websites, articles, publications, reports; Coriolis research and analysis

AVOCADO SMOOTHIE TO REDUCE HEART DISEASE

WHAT IS THE CONCEPT?

Avocados are shown (amongst many things) to lower Cholesterol and Triglyceride levels, they are good for your heart

GIVE ME THE ELEVATOR PITCH

Heart disease is the leading cause of death. Avocados are shown to impact associated risk factors. WA are able to grow avocados and succeed along the supply chain.

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?	\$35/350g (\$28-42/350g) \$100/kg (\$80-120kg)
WHAT SORT OF PACK SIZE?	350g, 500g, 1kg
WHAT PRODUCT FORM?	Dry Powder
WHAT FORM OF PACKAGING?	Plastic, or cardboard/paper seal
WHAT MARGINS WILL THE RETAILER TAKE?	45% (40-50%) of retail selling price
WHAT SORT OF PROFITABILITY?	EBITDA \$4.20/unit (\$2.50-3.00/unit) @12% of retail price (7-17%)

WHAT ARE THE KEY CHANNELS?

Supermarkets	✓✓✓✓
Pharmacy/Chemist	✓✓✓✓
Online	✓✓
Direct sales	✓✓
Duty Free	-
Daigou	-

WHO IS THE COMPETITON?

Smaller, regional firms making protein and smoothie powders

WHAT ARE THE POTENTIAL INGREDIENTS?

avocado, kakadu plum, psyllium

WHAT COULD IT LOOK LIKE?



AVOCADO SMOOTHIE TO REDUCE HEART DISEASE

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD	
Heart disease Lowering total cholesterol Lowering LDL cholesterol Reducing blood triglycerides		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO	SUPPLY CHAIN
	The Nutritionist Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Does or could grow in WA <div></div>
	The Doctor Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Strength in inputs <div></div>
							Capabilities across the chain <div></div>
							Clear partners <div></div>
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					PRIMARY SECTOR	
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?					Mechanically harvested <div></div>	
<ul style="list-style-type: none">Avocado are high in monosaturated fatty acids. Avocado consumption causes reductions in the plasma total cholesterol and low-density lipoprotein cholesterol levels.	<ul style="list-style-type: none">Grow avocados and seeds can be used in smoothies and as ingredients					High performance genetics available <div></div>	
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					Proven, scalable production model <div></div>	
Avocado are very nutrition heavy fruit full of vitamins and minerals	<ul style="list-style-type: none">On-going research into the health benefits of avocados					Required skills for success <div></div>	
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					PRODUCT CHARACTERISTICS	
Avocado as part of a healthy diet will help maintain a healthy heart. Additional research is required to clinically prove the specific benefits.	WA grown ingredients Fully traceable, clean ingredients Trusted source/Safe supply					Drought tolerant <div></div>	
						Low input production <div></div>	
						Wide range of uses <div></div>	
						Full product utilisation <div></div>	
						Indigenous knowledge <div></div>	
						OVERALL <div></div>	

Source: Company websites, articles, publications, reports; Coriolis research and analysis

RESISTANT STARCH FROM GREEN BANANA FOR GUT HEALTH

WHAT IS THE CONCEPT?

Green Banana resistant starch for gut health (use in smoothie, on cereal, baking in beverages)

GIVE ME THE ELEVATOR PITCH

Poor gut health is linked to mental health, obesity and immunity issues. Green Bananas are high in resistant starch a prebiotic soluble fibre good for the gut. It is free from gluten, grain and GMO's*, low in calories and carbs, suitable for keto, and paleo diets.

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?	\$35/500g (\$25-45/500g) \$70/kg (\$55-85/kg)
WHAT SORT OF PACK SIZE?	500g, 1kg
WHAT PRODUCT FORM?	Dry Powder
WHAT FORM OF PACKAGING?	Plastic, tamper seal
WHAT MARGINS WILL THE RETAILER TAKE?	45% (40-50%) of retail selling price
WHAT SORT OF PROFITABILITY?	EBITDA \$4.20/unit (\$2.50-6.00/unit) @12% of retail price (7-17%)

WHAT ARE THE KEY CHANNELS?

Supermarkets	✓✓✓
Pharmacy	✓✓✓✓
Online	✓✓
Direct sales	✓✓
Duty Free	-
Daigou	-

WHO IS THE COMPETITON?

National brands
Natural Evolution
Smaller, regional firms

WHAT ARE THE POTENTIAL INGREDIENTS?

Green Bananas

WHAT COULD IT LOOK LIKE?



RESISTANT STARCH FROM GREEN BANANA FOR GUT HEALTH

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD	
Gut health Immunity Mood Obesity		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO	SUPPLY CHAIN
	The Nutritionist Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Does or could grow in WA <div></div>
	The Doctor Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Strength in inputs <div></div>
WHAT DO THE EXPERTS SAY?		WHAT'S IN IT FOR WESTERN AUSTRALIA?					Capabilities across the chain <div></div>
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?		HOW CAN WA FARMERS PARTICIPATE?					Clear partners <div></div>
<ul style="list-style-type: none">Resistant starch functions like soluble fermentable fibre, feeding the intestinal gut bacteria and increases the production of short-chain fatty acids like butyrate - improving insulin sensitivity, lower blood sugar levels, reduced appetite and digestion benefits.		<ul style="list-style-type: none">Grow cassava for starch and flour					PRIMARY SECTOR
WHAT DOES THE NUTRITIONIST SAY?		HOW CAN WA SCIENTISTS PARTICIPATE?					Mechanically harvested <div></div>
Low resistant starch like green banana starch can be used as a baking ingredient or in a smoothie. The soluble fibre will be good for good gut health.		<ul style="list-style-type: none">Research into the benefits of green banana starchResearch extraction methods to maximise functionality of starch					High performance genetics available <div></div>
WHAT DOES THE DOCTOR SAY?		WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					Proven, scalable production model <div></div>
Resistant starch is generally good for your gut health, helping food the gut bacteria, with the wider reaching benefits on mood and weight loss. Like anything, don't have too much.		WA grown ingredients Potential to develop IP controlled product Trusted source/Safe supply					Required skills for success <div></div>
							PRODUCT CHARACTERISTICS
							Drought tolerant <div></div>
							Low input production <div></div>
							Wide range of uses <div></div>
							Full product utilisation <div></div>
							Indigenous knowledge <div></div>
							OVERALL <div></div>

GLOBE ARTICHOKE LEAF EXTRACT FOR LIVER HEALTH/APPETITE CONTROL

WHAT IS THE CONCEPT?	Artichoke leaf extract and other botanicals for liver health leading to appetite control		WHAT COULD IT LOOK LIKE?
GIVE ME THE ELEVATOR PITCH	<p>"The liver works hard each day to remove waste products and toxins from processed foods, unclean air, water and even its own metabolism. But as we get exposed to increasingly more toxins, the liver can struggle to remove them sufficiently and we may notice the results in our energy levels, our lack of youthful appearance – and even on our waistlines."</p>		
WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?		WHAT ARE THE KEY CHANNELS?	
WHAT SORT OF PRICING?	\$30/30 pills (\$25-35/30 pills) \$1,200/kg (\$1,000-1,400/kg)	Supermarkets	-
WHAT SORT OF PACK SIZE?	25g	Pharmacy/Chemist	✓✓✓✓
WHAT PRODUCT FORM?	Pill	Online	✓✓✓✓
WHAT FORM OF PACKAGING?	30 individual blister packs in a sheet	Direct sales	✓
WHAT MARGINS WILL THE RETAILER TAKE?	50% (45-55%) of retail selling price	Duty Free	✓
WHAT SORT OF PROFITABILITY?	EBITDA \$4.50/pack (\$3-6/pack) @15% of retail price (10-20%)	Daigou	-
		WHO IS THE COMPETITON?	
WHAT ARE THE POTENTIAL INGREDIENTS?		Imports	




GLOBE ARTICHOKE LEAF EXTRACT FOR LIVER HEALTH/APPETITE CONTROL

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD	
Weight management via liver function		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO	SUPPLY CHAIN
	The Nutritionist Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Does or could grow in WA <div></div>
	The Doctor Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Strength in inputs <div></div>
WHAT DO THE EXPERTS SAY?		WHAT'S IN IT FOR WESTERN AUSTRALIA?					Capabilities across the chain <div></div>
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?		HOW CAN WA FARMERS PARTICIPATE?					Clear partners <div></div>
<ul style="list-style-type: none">How well your liver functions has an enormous bearing on your metabolic rate and your energy level.The liver burns fat and creates fat out of glucose or protein. Conceptually a healthy liver could burn more fat.Current research suggests that artichokes can promote the synthesis and release of bile from the liver, which is made possible by a chemical compound called cynarine.		<ul style="list-style-type: none">Growing global artichokesGrowing milk thistleGrowing turmeric					PRIMARY SECTOR
WHAT DOES THE NUTRITIONIST SAY?		HOW CAN WA SCIENTISTS PARTICIPATE?					Mechanically harvested <div></div>
Artichokes are a healthy vegetable with many health giving properties. Eating artichokes would probably be a better solution.		<ul style="list-style-type: none">Further research on artichokes					High performance genetics available <div></div>
WHAT DOES THE DOCTOR SAY?		WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					Proven, scalable production model <div></div>
Eat artichokes as part of a healthy diet.		WA grown ingredients Potential to develop IP controlled bacteria Trusted source/Safe supply					Required skills for success <div></div>
PRODUCT CHARACTERISTICS							
Drought tolerant <div></div>							
Low input production <div></div>							
Wide range of uses <div></div>							
Full product utilisation <div></div>							
Indigenous knowledge <div></div>							
OVERALL <div></div>							

Source: Company websites, articles, publications, reports; Coriolis research and analysis

ACTIVATED CHARCOAL FROM GRAIN WASTE FOR GUT HEALTH

WHAT IS THE CONCEPT?	Turning the remains from grain production into activated charcoal			WHAT COULD IT LOOK LIKE?
GIVE ME THE ELEVATOR PITCH	Activated Charcoal has been traditionally used to support healthy digestive function. Its porous texture gives it the ability to attract and trap toxins that are typically present in the GI (gastrointestinal) tract and carry them out of the body. Most current supply is from coconuts. WA could produce it from grain waste.			
WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?		WHAT ARE THE KEY CHANNELS?		
WHAT SORT OF PRICING?	\$30/200 capsules (\$24-36/200caps) \$130/kg (\$100-150/kg)	Supermarkets	✓✓	
WHAT SORT OF PACK SIZE?	234g	Pharmacy/Chemist	✓✓✓✓	
WHAT PRODUCT FORM?	Capsules	Online	✓✓	
WHAT FORM OF PACKAGING?	Plastic jar; foil seal	Direct sales	✓	
WHAT MARGINS WILL THE RETAILER TAKE?	50% (45-55%) of retail selling price	Duty Free	✓	
WHAT SORT OF PROFITABILITY?	EBITDA \$4.50/jar (\$3-6/jar) @15% of retail price	Daigou	-	
		WHO IS THE COMPETITON?		
		Proctor & Gamble Smaller, regional firms		
WHAT ARE THE POTENTIAL INGREDIENTS?	Activated Charcoal Powder			



ACTIVATED CHARCOAL FROM GRAIN WASTE FOR GUT HEALTH

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD
Gut health, digestive disorders		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO
	The Nutritionist Says	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
	The Doctor Says	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					SUPPLY CHAIN
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?					Does or could grow in WA
<ul style="list-style-type: none"> Charcoal's porous texture has a negative electrical charge which causes it to attract positively charged molecules, such as toxins and gases. Activated charcoal may also help to alleviate uncomfortable gas and bloating caused by gas-producing foods 	<ul style="list-style-type: none"> Continue growing grains 					Strength in inputs
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					Capabilities across the chain
Activated charcoal is a known and understood product. However, the health benefits in the human body are unclear.	<ul style="list-style-type: none"> Determine if there are any differing benefits from grain based activated charcoal Further research on the benefits of activated charcoal 					Clear partners
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					PRIMARY SECTOR
I'm not convinced.	WA grown ingredients Existing waste streams Trusted source/Safe supply					Mechanically harvested
						High performance genetics available
						Proven, scalable production model
						Required skills for success
						PRODUCT CHARACTERISTICS
						Drought tolerant
						Low input production
						Wide range of uses
						Full product utilisation
						Indigenous knowledge
						OVERALL

PLANT DERIVED TERPENES FOR MOOD

WHAT IS THE CONCEPT?

Essential oils from plants in a carrier oil to support mood

GIVE ME THE ELEVATOR PITCH

Cannabis produces hundreds of cannabinoids and terpenes. Some, such as THC* and CBD^, are widely known. Others, including terpenes like the woody pinene and the citrusy limonene, are just entering the mainstream lexicon. This product combines terpenes from non-cannabis sources.

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?

\$30/30ml (\$-/)
\$100/kg (\$80-120/kg)

WHAT SORT OF PACK SIZE?

30ml

WHAT PRODUCT FORM?

Oil

WHAT FORM OF PACKAGING?

Glass or plastic bottle; foil seal

WHAT MARGINS WILL THE RETAILER TAKE?

50% (45-55%)
of retail selling price

WHAT SORT OF PROFITABILITY?

EBITDA \$4.50/30ml (\$3-6/30ml)
@15% of retail price (10-20%)

WHAT ARE THE KEY CHANNELS?

Supermarkets

✓✓

Pharmacy/Chemist

✓✓✓✓

Online

✓✓

Direct sales

-

Duty Free

-

Daigou

-

WHO IS THE COMPETITION?

Imports
Smaller, regional firms

WHAT ARE THE POTENTIAL INGREDIENTS?

MCT oil (typically from coconuts), Alpha-Pinene (pine, also eucalyptus and orange peels), Terpinolene (apples), Alpha-Bisabolol (chamomile), D-Limonene (lemons), Beta Caryophyllene (cloves), natural flavours

WHAT COULD IT LOOK LIKE?



PLANT DERIVED TERPENES FOR MOOD

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD	
Mood		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO	SUPPLY CHAIN
	The Nutritionist Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Does or could grow in WA <div></div>
	The Doctor Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Strength in inputs <div></div>
WHAT DO THE EXPERTS SAY?		WHAT'S IN IT FOR WESTERN AUSTRALIA?					Capabilities across the chain <div></div>
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?		HOW CAN WA FARMERS PARTICIPATE?					Clear partners <div></div>
<ul style="list-style-type: none">Antioxidant effects; a wide range of terpenes exist and numerous effects have been observed; limited conclusive evidence to date		<ul style="list-style-type: none">Grow a wide range of plants containing terpenesGrow industrial hemp					PRIMARY SECTOR
WHAT DOES THE NUTRITIONIST SAY?		HOW CAN WA SCIENTISTS PARTICIPATE?					Mechanically harvested <div></div>
<p>Terpenes are widely used in household products, cosmetics, toiletries and fragrances. It is not really controversial to say that nice odors can generally put people in a better mood.</p>		<ul style="list-style-type: none">Research around the effects of terpenes on moodIdentification of terpenes in Australian native plants					High performance genetics available <div></div>
WHAT DOES THE DOCTOR SAY?		WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					Proven, scalable production model <div></div>
<p>Probably a placebo. Clearly not a treatment for any actual mood disorder. Anyone with serious mood issues should consult a professional.</p>		<p>WA grown ingredients Wide range of climatic zones Unique range of plants unavailable elsewhere Trusted source/Safe supply</p>					Required skills for success <div></div>
							PRODUCT CHARACTERISTICS
							Drought tolerant <div></div>
							Low input production <div></div>
							Wide range of uses <div></div>
							Full product utilisation <div></div>
							Indigenous knowledge <div></div>
							OVERALL <div></div>

Source: Company websites, articles, publications, reports; Coriolis research and analysis

TABLE OF CONTENTS

page 7	page 17	page 54	page 75	page 105	page 133
<i>Context, Markets and Process</i>	<i>Conditions, Concepts and Challenges</i>	<i>Health Focused Dairy/Alternative Dairy</i>	<i>Oat Extracts</i>	<i>Plant Proteins</i>	<i>Medical/Health Focused Ready Meals</i>
page 161	page 205	page 233	page 262	page 337	
<i>Botanical Waste Streams</i>	<i>Meat Extracts</i>	<i>Bushcrop Extracts</i>	<i>Other Opportunities</i>	<i>Appendix I Markets & Conditions Details</i>	

Collagen and bone broth are the key meat extracts

“Bone broth reduces a mixture of animal bones, cartilage, connective tissue, and other flavorings that may include vegetables and spices. Bone broth can be used in various ways, such as a beverage or casseroles, stews, curries, and soups. Bone broth is known for its high-protein content, amino acids from collagen, and subsequent health benefits, such as support for digestive health. There are many types of bone broth on the market. The more commonly known varieties are beef, chicken and fish bone broth. These can be made at home as well as purchased in both dehydrated and liquid form. A more suitable option for vegetarians and vegans is vegetable broth..”



“Bone broth is a soupy preparation of bone and bone cartilage of chicken or beef. Bone broth is consumed due to its versatile nutritional composition and high protein content. The bone broth is slow-cooked for more than half a day to form a uniform broth and its taste is welcomed across all the region. The bone broth is also processed into powder to form an animal protein additive.”



“Bovine, porcine, poultry, and marine are the four main sources required to manufacture **collagen**... However, concerns regarding the transfer of diseases such as bovine spongiform encephalopathy (BSE) to humans owing to the consumption of bovine are anticipated to restrain the growth of bovine-based collagen over the forecast period.”

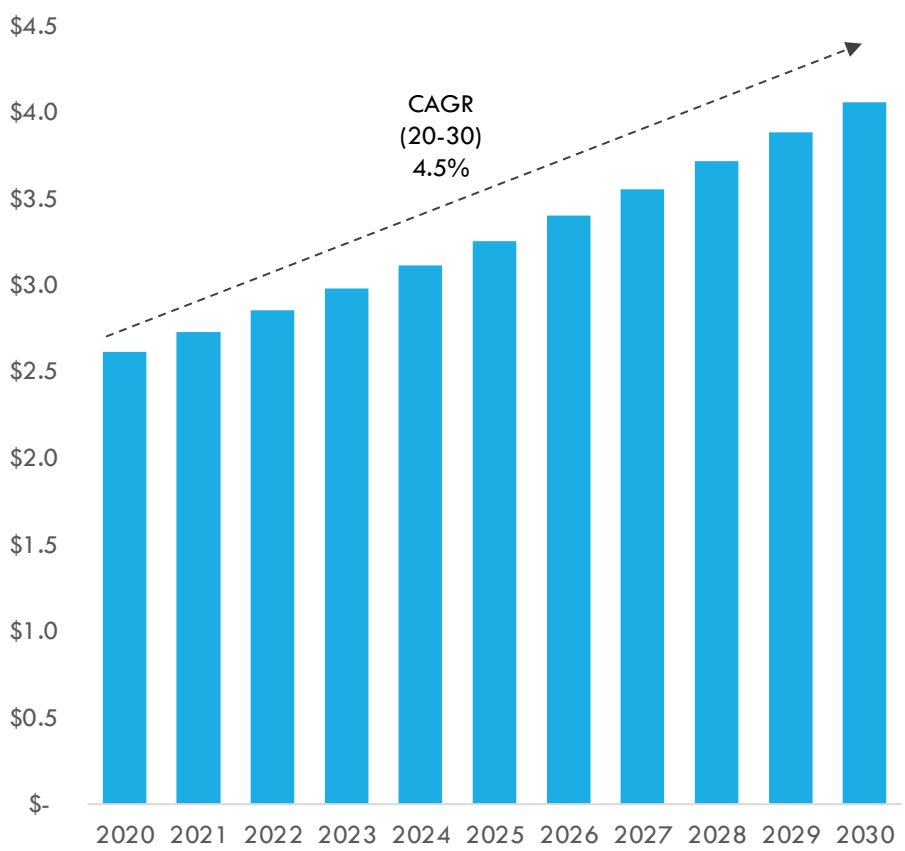


“Collagen supplement are dietary supplements that are used to address the deficiency of collagen in the diet. They are usually derived from bones and skin of animals and fish. They come in a variety of forms, including pills, gummies, powder, and drinks. Collagen supplements are available across the world and can be consumed without the prescription of a medical practitioner. Collagen supplements are very popular among bodybuilders and regular fitness enthusiasts as they help them maintain the health of their skin and bones.”

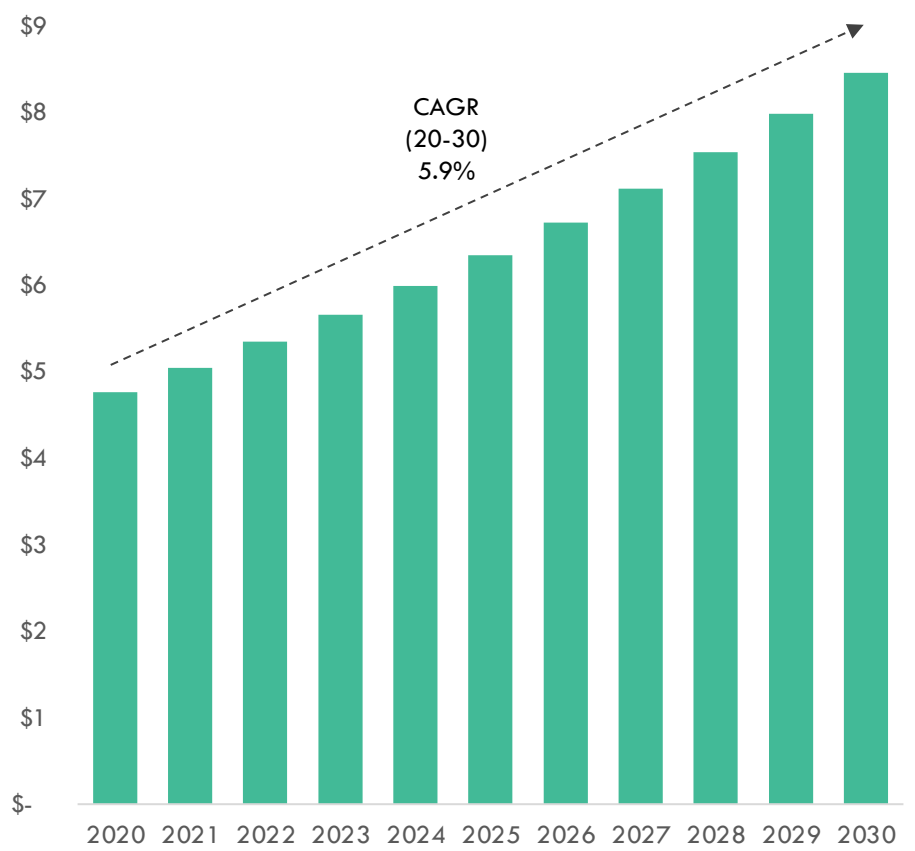


Both major meat extracts – bone broth and collagen - are forecast to grow strongly over the next decade

GLOBAL BROTH MARKET VALUE
US\$, b; 2020-2030



GLOBAL COLLAGEN MARKET VALUE
US\$, b; 2020-2030



Why collagen? Because there is large and growing demand worldwide

"The growth of the collagen supplement market can be attributed to several health and beauty benefits associated with the ingestion of collagen supplement. For instance, the ingestion of collagen supplement enhances the health of skin by reducing dryness and wrinkles. It also increases muscle mass, improves bone health, and provides relief from joint pain. Moreover, rise in diseases, such as arthritis, rheumatoid arthritis, and other inflammatory bone diseases, has encouraged consumers/people to inculcate special supplements to keep themselves agile."



"The food and beverage industry is expected to be a major contributor to the rising demand for gelatin and hydrolyzed collagen. The product is an essential protein for the human body and has multiple nutritional, skin, and health benefits. However, concerns regarding the transfer of diseases from certain raw material sources have hindered market growth. The industry is regulated by laws and regulations governing animal-based raw materials and ingredients used in collagen production. Key players in the market operate through limited production capacities with the product-manufacturing units located close to the source of raw material, leading to low procurement costs."



"The global marketplace has witnessed a paradigm shift from curative practices to preventive management in healthcare... With the growing demand for dietary supplements, collagen (which is mostly derived from bovine sources and, sometimes, from chicken and fish scales) has become a part of functional drinks for the treatment of joint, muscle, and bone-related health issues. Hence, the use of collagen as a dietary supplement in preventing various diseases, like arthritis, is supporting the market growth. Thus, the dietary supplements industry plays a pivotal role in the growth of the collagen market."



"The rising demand for convenience food and increasing awareness of collagen in the medical and healthcare industries are the major driving factors for the market... Factors such as changing lifestyles and increasing population of working women are driving the demand for ready-to-eat collagen globally. Collagen has a wide range of applications in the medical & pharmaceutical sector... The increasing health and medical issues have led to the increasing use of collagen in medical applications. Gelatin is widely used in foods to improve elasticity, consistency, and stability. It also helps to normalize gut hormones in obese people."



Why bone broth? Because there is large and growing demand worldwide

"The consumers' shift towards the protein-based food sourced from animals is driving the bone broth protein market at large. The growing trend of consuming protein based ready to eat and ready to drink food and beverages is driving the bone broth protein market. The bone broth protein has numerous health benefits such as improved bone strength, skin aging, and strengthened immunity and metabolism. The bone broth protein market is being driven by the increased number of health-conscious people across the globe. The fastened urbanization and continuous aging population are significantly supporting the growth of the bone broth protein market. Moreover, there is a rise in the consumption of nutritious food and beverages to keep away from medicines is driving the bone broth protein market."



"The rising health and wellness food and beverage demand globally are anticipated to result in the extensive growth of the bone broth market. The products in bone broth market are targeted towards the consumer base looking for a benefiting animal source in a convenient and easy to consume way. The bone broth products contain essential minerals such as calcium and magnesium in larger amount unlike other animal protein based products giving a competitive edge over other animal protein sources resulting in growing demand globally."



"Growing awareness regarding health among consumers across the globe coupled with the numerous health benefits offered by broth consumption will drive the industry growth. Surge in demand for additional healthy products among athletes and bodybuilders to boost performance, general fitness, and overall health will provide a strong broth market outlook for manufacturers.

Key ingredients including gelatin, collagen, glutamine and glycine are expected to propel product utilization. Persuading health benefits including improved digestive health, immunity and soft tissues recovery are the major supporting factors for product penetration.."



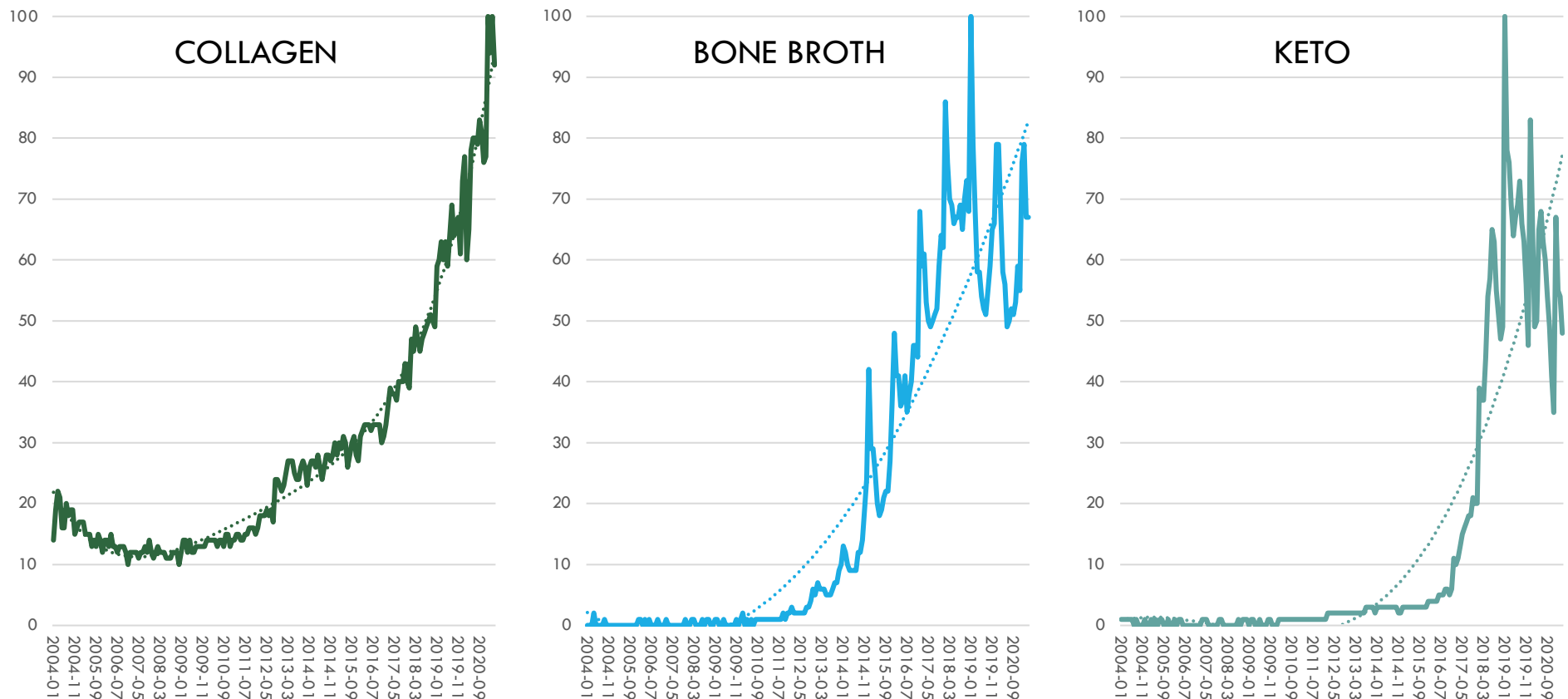
"There are many reasons for incorporating good-old-fashioned bone broth into the diet. The following health benefits attest to its status as "good medicine." It helps heal and seal the gut and promotes healthy digestion. The gelatin found in bone broth is a hydrophilic colloid. It attracts and holds liquids, including digestive juices, thereby supporting proper digestion. It reduces joint pain and inflammation, courtesy of chondroitin sulfates, glucosamine, and other compounds extracted from the boiled down cartilage. It promotes strong, healthy bones. Bone broth contains high amounts of calcium, magnesium, and other nutrients that play an important role in healthy bone formation. It promotes healthy hair and nail growth, thanks to the gelatin in the broth."



Global interest in animal-derived supplements is increasing, particularly since COVID

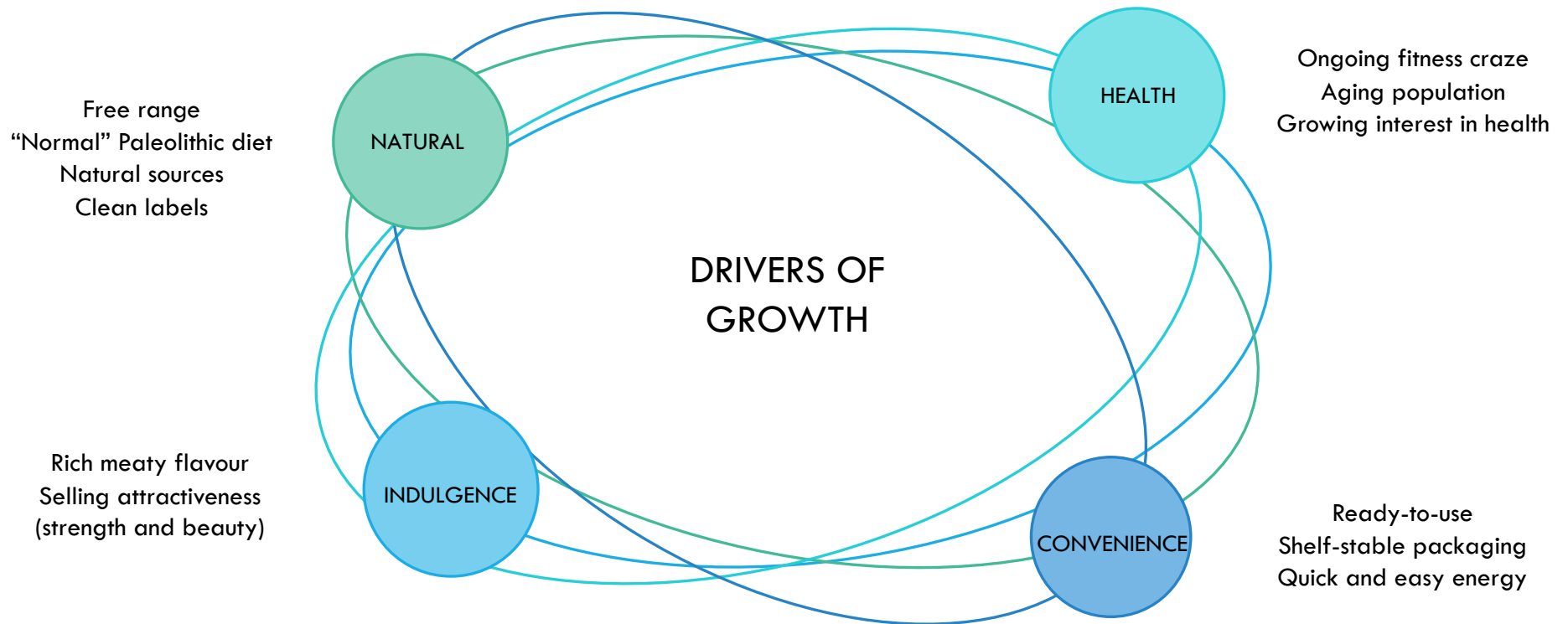
17Y WORLDWIDE GOOGLE TRENDS SELECT SEARCH INTEREST INDEX OVER TIME*

Relative index; 2004-2020



NOTE: Numbers represent search interest relative to the highest point on the chart for the given region and time. A value of 100 is the peak popularity for the term. A value of 50 means that the term is half as popular. Source: Google Trends; Coriolis analysis

Global growth is coming from solid, long term drivers of growth



How could we do it?

STRAWMAN FOR DISCUSSION

VISION:

Western Australia builds a strong, health-focused, value-added meat extracts sector targeting leading to an at-scale further processing industry supplying Australia & export markets

1

Conduct stocktake to understand existing supplies of suitable raw materials available in WA across key species

Determine what – if any – new equipment is required to produce these products

Assess willingness of key stakeholders to work together on this opportunity

2

Develop a relatively simple initial product to “get the ball rolling”

Consider supplying bulk product to other firms to drive scale

Identify a science and research agenda to develop more differentiated products

3

Emphasise defensible properties of Western Australian products (e.g. safe, trusted, biosecure)

Build market, initially targeting Australia, followed by developed Asia

Target key influencers

What sort of products are we suggesting?



UHT
Bone
Broth



Instant
Bone
Broth



Bone Broth
“Spread”



RTD
Beverage



Collagen
Protein



Protein
Blends



Protein
Bars



Snacks

What is the development pathway for collagen?

CURRENT

Higher complexity
More science required
Greater capabilities needed



STAGE I
Simple powders



STAGE II
Products targeting body building
and beauty markets



STAGE III
More complex ranges with more
complex formulations



STAGE IV
“Hospital Ready” Medical Products
Suited to Specific Conditions

What is the development pathway for bone broth?

Higher complexity
More science required
Greater capabilities needed



STAGE I

Basic liquid bone broth in simple aseptic pouch



STAGE II

Instant bone broth products



STAGE III

Bone broth based functional foods



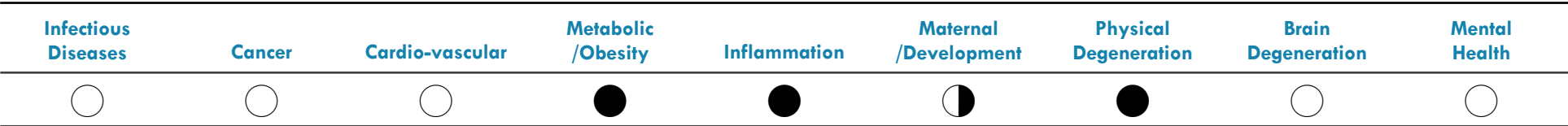
STAGE IV

"Prescription ready" bone broth based functional foods targeting specific conditions (e.g. joint health)

The meat extracts platform delivers high quality nutrition and can address numerous health concerns

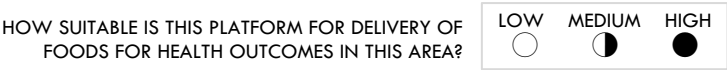
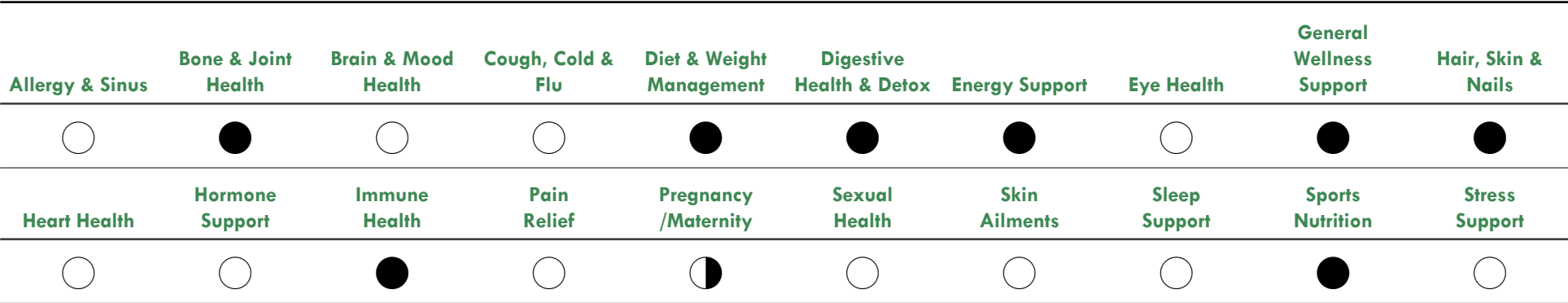
MEDICAL

WHICH BROAD CATEGORIES (FROM A MEDICAL POINT-OF-VIEW) CAN BE TARGETED WITH THIS PLATFORM?



RETAIL

WHICH BROAD CATEGORIES (FROM A RETAIL POINT-OF-VIEW) CAN BE TARGETED WITH THIS PLATFORM?

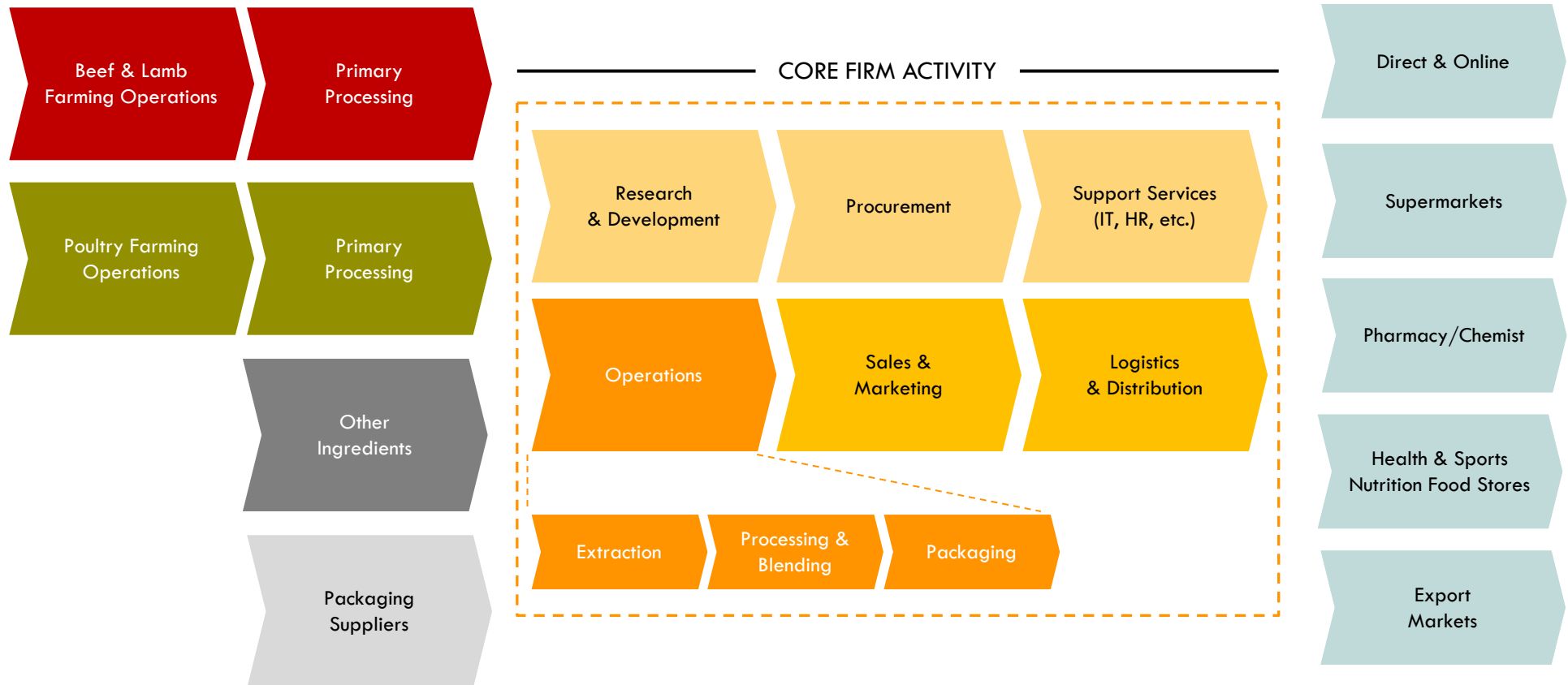


Western Australian meat extracts are well positioned to execute on and deliver key trends

CORIOLIS FOOD & BEVERAGE TRENDScopeSM

TIME SAVING	FAST	EASY OPEN	SOCIAL	INSTA READY	PICTURESQUE
HASSLE FREE	SIMPLIFIES	EASY	REWARDS	FARM TOUR	FUN
LOW EFFORT	CONVENIENCE	RANGE	CONNECTIONS	INVOLVEMENT	ARTISAN
SOLUTIONS	READY TO COOK	READY TO EAT/USE	HAND CRAFTED	SMALL BATCH	SENSORY
MICROWAVE	REUSABLE	STORY TELLING	AUTHENTIC	CELLAR DOOR	AGED
SUPERIOR	RICH FLAVOUR	SPECIAL EDITION	TRADITIONAL	RESPONSIBLE	FAMILY OWNED
DISTINCT	PROMOTED	SPONSOR	CERTIFIED	HEIRLOOM	FAIR TRADE
ENDORSED	PREMIUM	ADVERTISED	PROTECTED	STEWARDSHIP	TRADE AID
FAMOUS	AWARD WINNING	"ESTATE" GROWN	LIFE CYCLE	TRACEABLE	ETHICAL
QUALITY	EXPENSIVE	RARE/UNIQUE	SOCIALLY AWARE	INDIGENOUS	FREE RANGE
LOW FAT	LOW CARB	TRUSTED	LOCAL	NATIVE CROPS	GRASS FED
PROTEIN	FREE FROM	NO HORMONES	LOW INPUT	CARBON ZERO	EARTH FRIENDLY
NUTRACEUTICAL	HEALTH	NATURAL	ECOLOGICAL	SUSTAINABLE	LOW WATER USE
THERAPEUTIC	CHEMICAL FREE	PLANT BASED	BEE FRIENDLY	NITROGEN FIXING	ORGANIC
MEDICINAL	WELLNESS	PALEO	RENEWABLE	BIODYNAMIC	REGENERATIVE

How would the value chain be organised?



Who are the high potential commercial partners for this opportunity?

				
Firm	HARVEY BEEF	WAMMCO	CRAIG MOSTYN	HOLISTA COLLTECH
Relevant product categories	Beef Aquaculture Horticulture	Lamb	Pork & Beef Rendering Seafood	Ovine Collagen*

				
Firm	MILNE AGRIGROUP	OTHER PROCESSORS	SMALL/MED LOCALS	WELL RESOURCED FARMS
Relevant product categories	Feeds Poultry	Beef & Lamb Pork Poultry	Cured meats Meat products	

* Currently make Ovinex a food grade ovine collagen ingredient; Source: company website; company annual report; various published articles and reports; Coriolis analysis

Who are the other key stakeholders?



RESEARCH ORGANISATIONS

- Multiple research organisations are researching and/or supporting research



FARMERS ORGANISATIONS

- WA has strong farmer organisations



UNIVERSITIES

- WA has a range of leading universities, including four medical schools (UWA, UND, CU & ECU)
- Multiple research streams underway that touch on parts of this opportunity



GOVERNMENT

- A wide range of state agencies touch on this opportunity

Where is investment required?

1

INVESTING IN **NEW PRODUCT DEVELOPMENT**

- While clear global models exist, products are conceptual at this point
- Significant work needs to be undertaken to the initial finished consumer offer

2

INVESTING IN DEMONSTRATING THE **EFFICACY OF FUNCTIONAL INGREDIENTS**

- Solid evidence is required before specific, targeted health claims can be made
- Alternatively, initial products can leverage proven ingredients with accepted claims

3

INVESTING IN REQUIRED **PROCESSING & PACKAGING EQUIPMENT**

- WA meat processors and renderers can produce raw materials and inputs
- Depending on the coalition that develops around this concept, additional equipment will likely be required

What meat waste/meat extract products emerged from Stage I of the screen?

*BONE BROTH POWDER
TO ENHANCE
IMMUNITY AND GUT
HEALTH*

*BONE BROTH LIQUID
FOR JOINT AND BONE
HEALTH*

*BONE BROTH SPREAD
FOR OSTEOARTHRITIS*

*DOG VITAMIN CHEW
FOR JOINTS AND
MOBILITY*

*PIGS EARS FOR DOG
AND CAT JOINTS AND
MOBILITY*

BONE BROTH POWDER TO ENHANCE IMMUNITY AND GUT HEALTH

WHAT IS THE CONCEPT?

Bone Broth powder to support a healthy gut and strong immunity

GIVE ME THE ELEVATOR PITCH

Having a strong immunity and healthy gut is necessary for a healthy body and mind. Bone broth is very rich in amino acids, vitamins and minerals supporting gut health and a strong immunity. WA is well positioned to provide the inputs to produce a dehydrated or freeze dried powder broth

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?

\$25/100g (\$20-30/100g)
\$250/kg (\$200-300/kg)

WHAT SORT OF PACK SIZE?

150g, 200g, 500g

WHAT PRODUCT FORM?

Dry Powder

WHAT FORM OF PACKAGING?

Plastic, paper seal, glass bottle

WHAT MARGINS WILL THE RETAILER TAKE?

35% (30-40%)
of retail selling price

WHAT SORT OF PROFITABILITY?

EBITDA \$3.00/unit (\$1.50-4.50/unit)
@10% of retail price (5-15%)

WHAT ARE THE KEY CHANNELS?

Supermarkets

✓✓✓✓

Pharmacy/Chemist

✓✓✓✓

Online

✓✓

Direct sales

-

Duty Free

-

Daigou

-

WHO IS THE COMPETITION?

NutraOrganics
Broth of Life
Broth & Co.
Other smaller, regional firms

WHAT ARE THE POTENTIAL INGREDIENTS?

Grass fed beef bones, free range chicken bones, apple cider vinegar, salt, collagen

WHAT COULD IT LOOK LIKE?



BONE BROTH POWDER TO ENHANCE IMMUNITY AND GUT HEALTH

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD
Leaky gut Poor immunity		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO
	The Nutritionist Says	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	The Doctor Says	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					SUPPLY CHAIN
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?					Does or could grow in WA <input checked="" type="radio"/>
<ul style="list-style-type: none"> Bone broth is very rich in amino acids, vitamins and minerals, glucosamine,, The cooking process turns collagen into gelatin that provides the body with amino acids 	<ul style="list-style-type: none"> Grow free range meats and organic vegetables 					Strength in inputs <input checked="" type="radio"/>
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					Capabilities across the chain <input type="radio"/>
Bone broth has been a staple over the centuries. Firms claim many health benefits: gut health, joint mobility, bone building, anti-inflammatory properties, muscle building, weight loss, improved sleep, skin health.	<ul style="list-style-type: none"> Research into formulations for increased health benefits 					Clear partners <input type="radio"/>
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					PRIMARY SECTOR
Some research has shown that Glutamine supplementation helps heal the intestinal barrier in humans, this may help with leaky gut. Bone both increases levels of amino acids in the body, these may have anti-inflammatory properties.	WA grown ingredients Utilises byproduct of meat industry (bones) Potential to develop new products Trusted source/Safe supply					Mechanically harvested <input checked="" type="radio"/>
						High performance genetics available <input checked="" type="radio"/>
						Proven, scalable production model <input checked="" type="radio"/>
						Required skills for success <input type="radio"/>
						PRODUCT CHARACTERISTICS
						Drought tolerant <input type="radio"/>
						Low input production <input type="radio"/>
						Wide range of uses <input checked="" type="radio"/>
						Full product utilisation <input checked="" type="radio"/>
						Indigenous knowledge <input type="radio"/>
						OVERALL <input checked="" type="radio"/>

Source: Company websites, articles, publications, reports; Coriolis research and analysis

BONE BROTH LIQUID FOR JOINT AND BONE HEALTH

WHAT IS THE CONCEPT?

Bone Broth powder to support a healthy gut and strong immunity

GIVE ME THE ELEVATOR PITCH

Having a strong immunity and healthy gut is necessary for a healthy body and mind. Bone broth is very rich in amino acids, vitamins and minerals supporting gut health and a strong immunity. WA is well positioned to provide the inputs to produce a dehydrated or freeze dried powder broth

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?

\$35/400g (\$30-40/400g)
\$88/kg (\$70-100/kg)

WHAT SORT OF PACK SIZE?

400g, 500g

WHAT PRODUCT FORM?

Liquid

WHAT FORM OF PACKAGING?

Plastic, glass bottle

WHAT MARGINS WILL THE RETAILER TAKE?

35% (30-40%)
of retail selling price

WHAT SORT OF PROFITABILITY?

EBITDA \$3.50/unit (\$1.80-5.30/unit)
@10% of retail price (5-15%)

WHAT ARE THE KEY CHANNELS?

Supermarkets

✓✓✓✓

Pharmacy/Chemist

✓✓✓✓

Online

✓✓

Direct sales

-

Duty Free

-

Daigou

-

WHO IS THE COMPETITION?

Smaller, regional firms

WHAT ARE THE POTENTIAL INGREDIENTS?

grass fed beef bones, free range chicken bones, apple cider vinegar, salt, collagen

WHAT COULD IT LOOK LIKE?



BONE BROTH LIQUID FOR JOINT AND BONE HEALTH

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD	
Joint health Bone health Arthritis Sleep		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO	SUPPLY CHAIN
	The Nutritionist Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Does or could grow in WA <div></div>
	The Doctor Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Strength in inputs <div></div>
WHAT DO THE EXPERTS SAY?		WHAT'S IN IT FOR WESTERN AUSTRALIA?					Capabilities across the chain <div></div>
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?		HOW CAN WA FARMERS PARTICIPATE?					Clear partners <div></div>
<ul style="list-style-type: none">Bone broth is very rich in amino acids, vitamins and minerals, glucosamine,,The cooking process turns collagen into gelatin that provides the body with amino acids.Bone broth contains: proline and glycine (for connective tissue), glucosamine and chondroitin (found in cartilage)		<ul style="list-style-type: none">Grow free range meats and organic vegetables					PRIMARY SECTOR
WHAT DOES THE NUTRITIONIST SAY?		HOW CAN WA SCIENTISTS PARTICIPATE?					Mechanically harvested <div></div>
<i>Bone broth has been a staple over the centuries. Firms claim many health benefits: gut health, joint mobility, bone building, anti-inflammatory properties, muscle building, weight loss, improved sleep, skin health.</i>		<ul style="list-style-type: none">Research into formulations for increased health benefitsResearch into medicinal benefits					High performance genetics available <div></div>
WHAT DOES THE DOCTOR SAY?		WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					Proven, scalable production model <div></div>
<i>Bone broth contains a number of compounds important for healthy bones and joints. While these compounds are present and vital and can reduce joint pain, more evidence is required to link broth to these benefits.</i>		WA grown ingredients Utilises byproduct of meat industry (bones) Potential to develop new products Trusted source/Safe supply					Required skills for success <div></div>
							PRODUCT CHARACTERISTICS
							Drought tolerant <div></div>
							Low input production <div></div>
							Wide range of uses <div></div>
							Full product utilisation <div></div>
							Indigenous knowledge <div></div>
							OVERALL <div></div>

Source: Company websites, articles, publications, reports; Coriolis research and analysis

BONE BROTH SPREAD FOR OSTEOARTHRITIS

WHAT IS THE CONCEPT?

Thickened bone broth as a paste to spread on toast for breakfast

GIVE ME THE ELEVATOR PITCH

This thickened paste delivers all the health giving properties of bone broth in a convenient, ready-to-spread form.

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?

\$43/260g (\$34-52/260g)
\$165/kg (\$130-200/kg)

WHAT SORT OF PACK SIZE?

260g

WHAT PRODUCT FORM?

Thickened paste

WHAT FORM OF PACKAGING?

Glass jar with airtight lid

WHAT MARGINS WILL THE RETAILER TAKE?

35% (30-40%)
of retail selling price

WHAT SORT OF PROFITABILITY?

EBITDA \$4.30/jar (\$2.20-6.50/jar)
@10% of retail price

WHAT ARE THE KEY CHANNELS?

Supermarkets

✓✓✓

Pharmacy/Chemist

✓✓✓✓

Online

✓✓

Direct sales

✓

Duty Free

-

Daigou

-

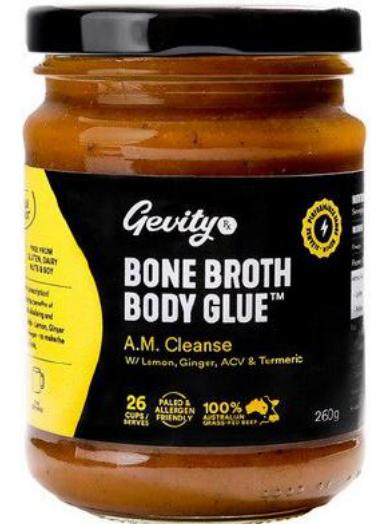
WHO IS THE COMPETITION?

Traditional bone broth suppliers
Gevity and other smaller, regional firms

WHAT ARE THE POTENTIAL INGREDIENTS?

100% Grass-Fed Beef Bones, Naturally Evaporated Sea Salt, Ginger, Turmeric, Organic Apple Cider Vinegar, Black Pepper, Lemon Myrtle

WHAT COULD IT LOOK LIKE?



BONE BROTH SPREAD FOR OSTEOARTHRITIS

WHAT IS IT TREATING?		HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD		
Joint pain			SOLID	PROBABLE	MAYBE	MODEST	LOW/NO	SUPPLY CHAIN	
		The Nutritionist Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Does or could grow in WA	<div></div>
		The Doctor Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Strength in inputs	<div></div>
WHAT DO THE EXPERTS SAY?		WHAT'S IN IT FOR WESTERN AUSTRALIA?					Capabilities across the chain		
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?		HOW CAN WA FARMERS PARTICIPATE?					Clear partners		
A 2016 study in the Nutrition Journal looked at the effects of type 2 collagen in people who had osteoarthritis symptoms in their knees. Its results show that collagen can improve knee joint symptoms, such as pain, stiffness, and poorer physical function, in people with osteoarthritis. Consuming bone broth may be an easy way to deliver collagen, along with other helpful nutrients.		• Continuing to farm cows, sheep and chickens					PRIMARY SECTOR		
WHAT DOES THE NUTRITIONIST SAY?		HOW CAN WA SCIENTISTS PARTICIPATE?					Mechanically harvested		
Bone broth is an “old wives tale” with a long heritage.		• Further research on bone broth and collagen					High performance genetics available		
WHAT DOES THE DOCTOR SAY?		WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					Proven, scalable production model		
This probably wont do any harm in mild cases.		WA grown ingredients Large supply of animal bones Trusted source/Safe supply					Required skills for success		
							PRODUCT CHARACTERISTICS		
							Drought tolerant		
							Low input production		
							Wide range of uses		
							Full product utilisation		
							Indigenous knowledge		
							OVERALL		

Source: Company websites, articles, publications, reports; Coriolis research and analysis

DOG VITAMIN CHEW FOR JOINTS AND MOBILITY

WHAT IS THE CONCEPT?

Vitamins targeting dogs joints and mobility issues

GIVE ME THE ELEVATOR PITCH

Older dogs often suffer joint and mobility pain. Vitamin Chew treats will help maintain healthy bone tissue, and joints. Western Australia can produce many ingredients for these products

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?

\$25/60 chews (\$20-30/60 chews)
\$70/kg (\$60-90/kg)

WHAT SORT OF PACK SIZE?

60 count, 100 count

WHAT PRODUCT FORM?

Chew pellets

WHAT FORM OF PACKAGING?

Plastic, tamper evident seal
or plastic/cardboard/paper seal

WHAT MARGINS WILL THE RETAILER TAKE?

35% (30-40%)
of retail selling price

WHAT SORT OF PROFITABILITY?

EBITDA \$2.50/unit (\$1.30-3.80/unit)
@10% of retail price (5-15%)

WHAT ARE THE KEY CHANNELS?

Supermarkets

✓✓✓

Pharmacy/Chemist

✓✓✓✓

Online

✓✓

Direct sales

✓✓

Duty Free

-

Daigou

-

WHO IS THE COMPETITON?

National Firms
Smaller, regional firms

WHAT ARE THE POTENTIAL INGREDIENTS?

beef, chicken, tapioca, cranberries, yucca, MSM (methyl sulfonylmethane), Glucosamine, tryptophan, range of vitamins

WHAT COULD IT LOOK LIKE?



DOG VITAMIN CHEW FOR JOINTS AND MOBILITY

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD
Arthritis Joint pain Mobility issues		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO
	The Nutritionist Says	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
	The Doctor Says	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					SCORECARD
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?					SUPPLY CHAIN
<ul style="list-style-type: none"> Micronutrients as basic components of cartilage and synovial fluid, stimulate the anabolic process of the cartilage metabolism and their anti-inflammatory action can delay many inflammation-induced catabolic processes in the cartilage. 	<ul style="list-style-type: none"> Grow free-range meat and chicken as ingredient Provide the shellfish shells (oysters) for Glucosamine Provide beef and/or pig cartilage for Chondroitin sulfate 					Does or could grow in WA <input checked="" type="radio"/> Strength in inputs <input type="radio"/> Capabilities across the chain <input type="radio"/> Clear partners <input type="radio"/>
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					PRIMARY SECTOR
<i>Glucosamine is well know as a osteoarthritic supplement, I'm unsure how it works in dogs.</i>	<ul style="list-style-type: none"> On-going research into nutrients impact on dog and cat joints 					Mechanically harvested <input type="radio"/> High performance genetics available <input checked="" type="radio"/> Proven, scalable production model <input checked="" type="radio"/> Required skills for success <input type="radio"/>
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					PRODUCT CHARACTERISTICS
<i>Research on arthritis and joint health is popular. There are mixed results with Glucosamine and chondroitin research and no long term studies. MSM* research is on-going for pain relief – in humans.</i>	WA grown ingredients Trusted source/Safe supply					Drought tolerant <input type="radio"/> Low input production <input type="radio"/> Wide range of uses <input checked="" type="radio"/> Full product utilisation <input checked="" type="radio"/> Indigenous knowledge <input type="radio"/>
						OVERALL <input type="radio"/>

*MSM = methyl sulfonylmethane; Source: Company websites, articles, publications, reports; Coriolis research and analysis

PIGS EARS FOR DOG AND CAT JOINTS AND MOBILITY

WHAT IS THE CONCEPT?

Pigs ears for dog and cat joint health

GIVE ME THE ELEVATOR PITCH

Older dogs often suffer joint and mobility pain. Pigs ears treats will help maintain healthy bone tissue, and joints. Western Australia can produce many ingredients for these products

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?

\$36/bag of 10 (\$30-40 bag)
\$145/kg (\$110-170/kg)

WHAT SORT OF PACK SIZE?

5, 6, 10, 12 pack

WHAT PRODUCT FORM?

dried/dehydrated

WHAT FORM OF PACKAGING?

Plastic, tamper evident seal
or plastic/cardboard/paper seal

WHAT MARGINS WILL THE RETAILER TAKE?

35% (30-40%)
of retail selling price

WHAT SORT OF PROFITABILITY?

EBITDA \$3.60/unit (\$1.80-5.40/unit)
@10% of retail price (5-15%)

WHAT ARE THE KEY CHANNELS?

Supermarkets	✓✓✓
Pharmacy/Chemist	-
Online	✓✓
Direct sales	✓✓
Duty Free	-
Daigou	-

WHO IS THE COMPETITON?

National Firms
Smaller, regional firms

WHAT ARE THE POTENTIAL INGREDIENTS?

beef, chicken, tapioca, cranberries, yucca, MSM (methyl sulfonylmethane), Glucosamine, tryptophan, range of vitamins

WHAT COULD IT LOOK LIKE?



PIGS EARS FOR DOG AND CAT JOINTS AND MOBILITY

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD	
Joint pain Mobility issues		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO	SUPPLY CHAIN
	The Nutritionist Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Does or could grow in WA <div></div>
	The Doctor Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Strength in inputs <div></div>
WHAT DO THE EXPERTS SAY?		WHAT'S IN IT FOR WESTERN AUSTRALIA?					Capabilities across the chain <div></div>
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?		HOW CAN WA FARMERS PARTICIPATE?					Clear partners <div></div>
<ul style="list-style-type: none">Pigs ears contain natural sources of glucosamine and Chondroitin - Chondroitin sulfate is a sulfated glycosaminoglyca		<ul style="list-style-type: none">Grow pigs and use ears as ingredient for pet supplement and treat					PRIMARY SECTOR
WHAT DOES THE NUTRITIONIST SAY?		HOW CAN WA SCIENTISTS PARTICIPATE?					Mechanically harvested <div></div>
<p>Pigs ears contain high levels of protein, omegas, glucosamine and chondroitin, all good for cat and dogs health.</p>		<ul style="list-style-type: none">On-going research into nutrients impact on dog and cat joints					High performance genetics available <div></div>
WHAT DOES THE DOCTOR SAY?		WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					Proven, scalable production model <div></div>
<p>Research on arthritis and joint health is popular. There are mixed results with Glucosamine and chondroitin research and no long term studies. MSM research is on-going for pain relief – in humans.</p>		<p>WA grown ingredients (pigs ears) Trusted source/Safe supply</p>					Required skills for success <div></div>
							PRODUCT CHARACTERISTICS
							Drought tolerant <div></div>
							Low input production <div></div>
							Wide range of uses <div></div>
							Full product utilisation <div></div>
							Indigenous knowledge <div></div>
							OVERALL <div></div>

Source: Company websites, articles, publications, reports; Coriolis research and analysis

TABLE OF CONTENTS

page 7	page 17	page 54	page 75	page 105	page 133
<i>Context, Markets and Process</i>	<i>Conditions, Concepts and Challenges</i>	<i>Health Focused Dairy/Alternative Dairy</i>	<i>Oat Extracts</i>	<i>Plant Proteins</i>	<i>Medical/Health Focused Ready Meals</i>
page 161	page 205	page 233	page 262	page 337	
<i>Botanical Waste Streams</i>	<i>Meat Extracts</i>	<i>Bushcrop Extracts</i>	<i>Other Opportunities</i>	<i>Appendix I Markets & Conditions Details</i>	

Why bushcrops? Because Western medicine is realising there is something in traditional wisdom and insights

“Indigenous people have been sustaining the land and our people for hundreds upon thousands of years in a mutually respectful and beneficial capacity. Indigenous people cared for country and, in turn, the resources necessary for survival were provided by country. Although the remedies Indigenous people know and use have been around since time immemorial, contemporary science is now paying attention to the benefits of traditional and holistic healing and considering how its application fits into modern medicine.”



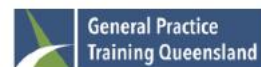
“Plants play an important role in all bush medicine practices – certain plants have proven results in healing or preventing disease over generations by many practitioners. However there is no official publication or listing of Aboriginal bush medicines and plant remedies as they vary between different tribes and locations.”



“Indigenous Australians have an impressive pharmacopoeia of plants and their applications, which we’re only beginning to explore. At the forefront is Indigenous ethnobotanist Gerry Turpin of James Cook University’s Australian Tropical Herbarium in Cairns. Turpin is researching and recording herbal wisdom for future use. He’s validating traditional plants’ therapeutic properties through scientific testing... Someone who shares Turpin’s passion for restoring traditional knowledge is Indigenous microbiologist, Dr Shane Ingrey. In liaison with Aboriginal elders, Ingrey has isolated five natural antibiotics from traditional plants and hopes to discover more antiviral and antibacterial agents to overcome ailments.”

Wild

“Bush medicine is used by most traditional healers in the prevention and treatment of a variety of illnesses. It’s primarily plant-based, using native barks, food, seeds and leaves as remedies. Used in Aboriginal cultures for thousands of years, most of this lore is passed down through stories and singing or dancing ceremonies. As a result, it can largely remain a mystery to non-Indigenous health care professionals.”



Why bushcrops? Consumer interest in the health giving properties of the Australian bush is growing, but opportunities and challenges exist

“Australia's bush food industry is growing, with produce such as finger limes, lemon myrtle and wattle seed in demand... There are more than 6,500 types of native food in Australia, with only 13 that are FSANZ [Food Standards Australia New Zealand]-certified and developed for local and international markets. Like any other food product, native bush food needs to be tested and certified to make it to supermarket shelves and export markets. Securing funding and government support for research and testing has been identified as one of the biggest barriers to the industry.”

ABC NEWS

“The bush tucker diet was generally low in energy density but high in nutrient density, being high in protein, low in sugars, high in fibre and high in micronutrients. The carbohydrate in most traditional plant foods is of low glycaemic index, producing lower glucose and insulin levels than similar Western foods. Their consumption may be protective against diabetes. Plant foods made up to 80% of the diet in desert areas and up to 40% in coastal areas. Although the traditional Aboriginal bush tucker diet contained a high proportion of animal foods, it would have been low in total fat, extremely low in saturated fat and relatively high in polyunsaturated fatty acids including the long-chain highly polyunsaturated fatty acids of both the omega-3 and omega-6 families, and hence protective against cardiovascular disease and related conditions.”

Survival.org.au

“When you walk around the pharmacy you will see some pretty obvious ones in terms of eucalyptus oils and tee tree oils. So they have been popular for a number of years. These are the oils you can put on the skin if you have cuts or abrasions to stop them going septic. So they are very good antiseptic agents. Apart from that there is not a very huge amount at the moment. We do have very good medicinal plants out there; it's just that they are taking some time to break onto the market, to sell at pharmacies.”

Dr Ian Cock, Griffith University Lecturer

SBS

“[Australians] have also generally been followers and not trend setters when it comes to our culinary influences. But when it comes to superfoods, our indigenous range is becoming a trend and follows on from plant-based diets, paleo, acai, turmeric, almond or coconut milks and such.”

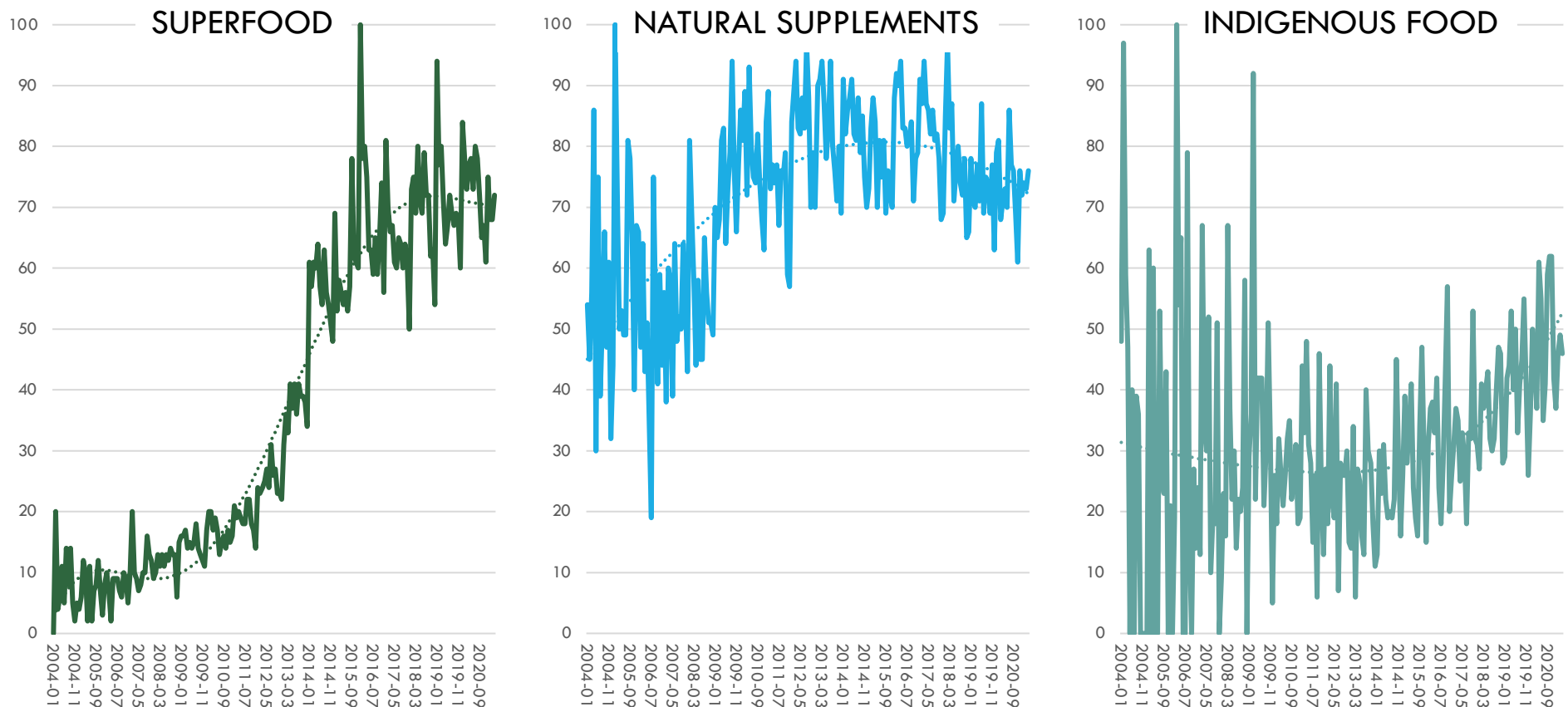
Vic Cherikoff, Director, Australian Functional Ingredients

The Sydney Morning Herald

Global interest in indigenous food, superfoods and natural supplements is increasing

17Y WORLDWIDE GOOGLE TRENDS SELECT SEARCH INTEREST INDEX OVER TIME*

Relative index; 2004-2020



NOTE: Numbers represent search interest relative to the highest point on the chart for the given region and time. A value of 100 is the peak popularity for the term. A value of 50 means that the term is half as popular. Source: Google Trends; Coriolis analysis

Australian bushfoods are feeding into the growing global interest in “superfoods”

“The popularity for 'superfoods', such as superfruits and super grains has increased significantly over recent years with product launches, as consumers are inclined more toward natural and wholesome ingredients... The superfood market is gaining attention among American as well as European consumers as interest in healthy living increases in tandem with rising levels of health-related problems. In the European region, cardiovascular diseases, obesity, and diabetes remain major diseases. This is owing to the high consumption of processed foods in this region. As a result, there is a paradigm shift in people's preferences toward healthy foodstuffs coined as “superfoods” including quinoa and chia seeds.”



“Growing consumer interest in a healthy diet and wellness benefits has led to a thriving food & beverage industry in the recent past and this trend is expected to continue over the forecast period. This, in turn, is projected to propel the demand for superfoods in the coming years. Increasing healthcare costs, growing geriatric population, food innovations, changing lifestyle, and medical discoveries have benefitted the demand for superfoods and consequently the overall market growth. Ascending demand for natural, nutrient-rich food containing vitamins and essential minerals is further boosting the market for superfoods.”



“The market drivers which contribute to the superfoods market include the increasing consumer health awareness, high prevalence of diseases, the implementation of a nutritious diet, the rising urbanization which increased supply for ready-to-eat packaged foods, the rising rate of social media trends, and numerous promotional events advertising the advantages of superfoods... Furthermore, due to sedentary consumer habits, the high prevalence of obesity, diabetes, and heart-related medical problems is fueling demand for superfoods.”

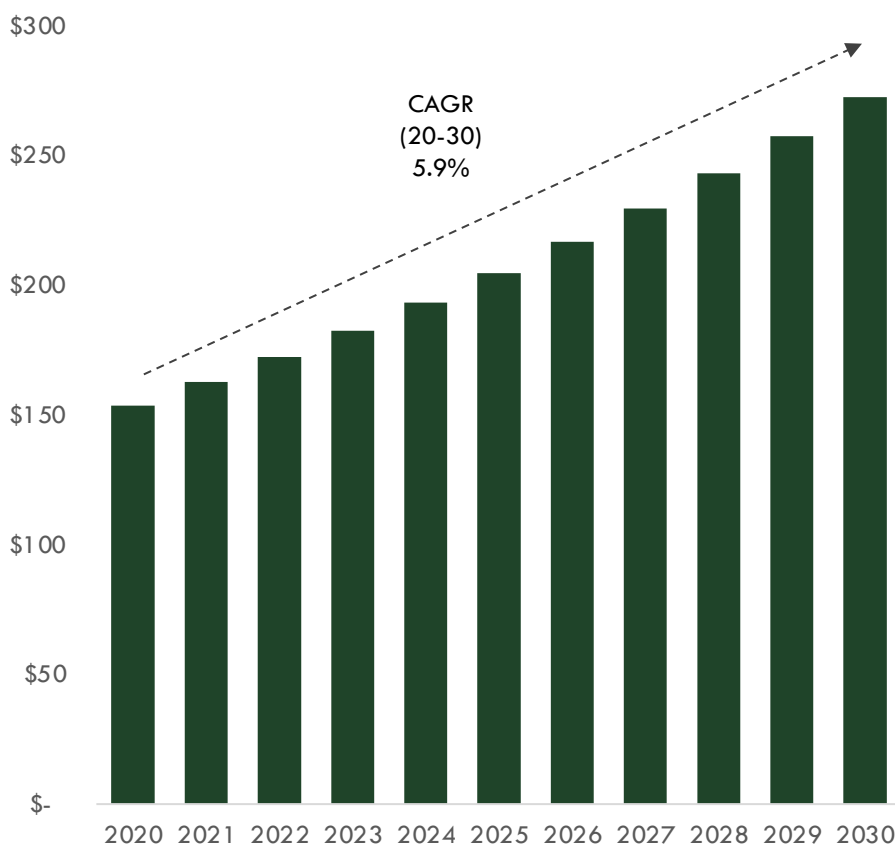


“The growing consumer health consciousness coupled with the increasing awareness towards several nutritional benefits of superfoods is primarily driving the market growth. Moreover, the high prevalence of obesity, diabetes, and heart-related medical ailments, due to sedentary consumer lifestyles is also catalyzing the demand for superfoods. The rising adoption of a balanced diet, particularly among the health-conscious consumers has led to the incorporation of superfoods in everyday meals.”

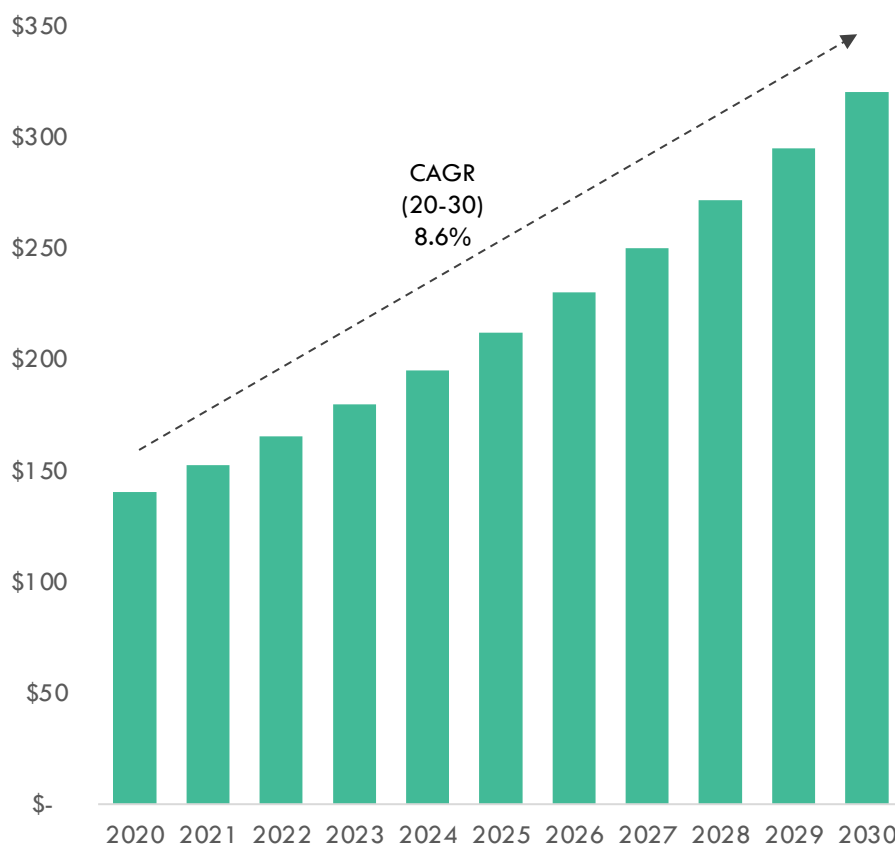


The global market for both superfoods and supplements are forecast to grow strongly over the next decade

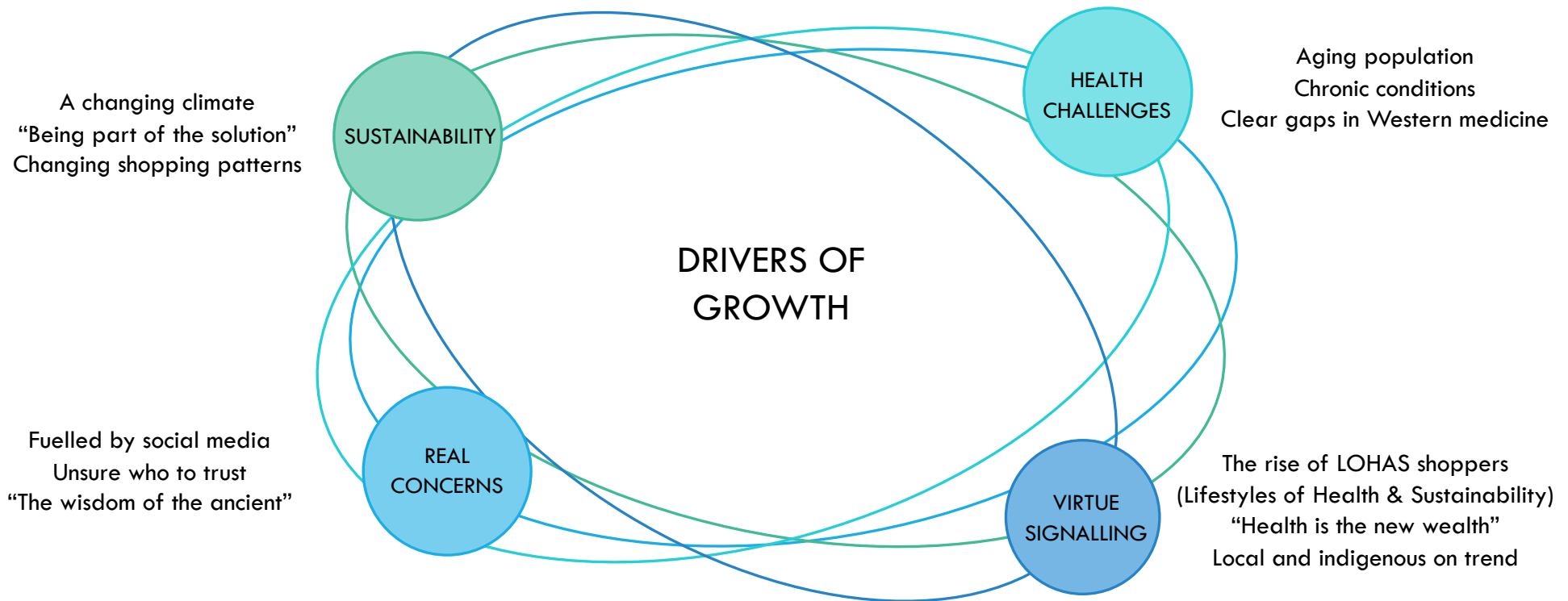
GLOBAL SUPERFOODS MARKET VALUE
US\$; b; 2020-2030



GLOBAL DIETARY SUPPLEMENTS VALUE
US\$; b; 2020-2030



Global growth is coming from solid, long term drivers of growth



How could we do it?

STRAWMAN FOR DISCUSSION

VISION:

Western Australia builds a strong healthcare products sector based on native Australian botanicals leading to an at-scale VMS* industry supplying local, national and export markets

1

Review and scan of Western Australian native plants from a health perspective; what are the most promising for efficacy?

Bring together the “pieces of the puzzle” already in place in Western Australia

Create a “coalition of the willing” to take to opportunity forward

2

Focus initially on the most effective product from a health perspective

Develop a standard of measurement similar to manuka honey

Identify a science and research agenda to validate product claims and traditional wisdom

3

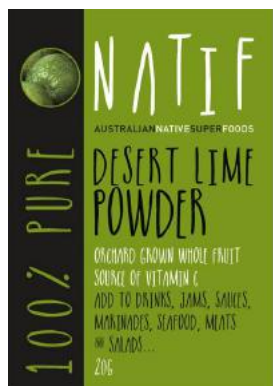
Develop a clear brand, positioning and marketing plan

Focus on maintaining a premium position

Build market, initially targeting Australia, followed by developed Asia

* VMS = Vitamins, Minerals and Supplements; Source: Coriolis analysis

What sort of products are we suggesting?



Native
Limes



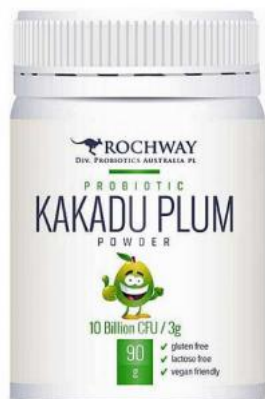
Saltbush



Lemon
Myrtle



Quandong



Kakadu
Plum



Riberry



Lemon
Aspen



Bunya
Nut

What is the development pathway?

Higher complexity
More science required
Greater capabilities needed →

CURRENT



STAGE I
Simple extract or powder



STAGE II
Complex multi-ingredient
treatments



STAGE III
Consumer ready health focused
foods and beverages

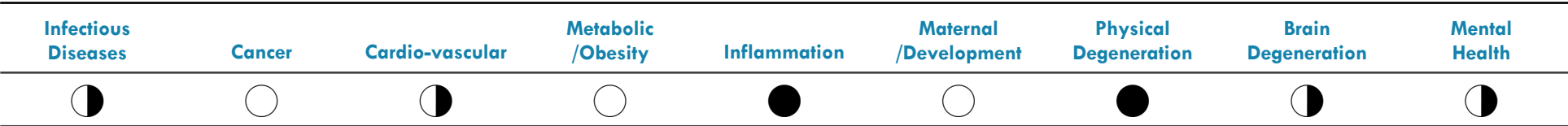


STAGE IV
Pharmacy products suited to
specific conditions

The health-focused bushcrops extracts platform delivers unique solutions based on traditional medicine for a wide range of conditions

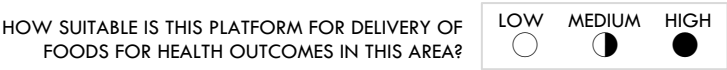
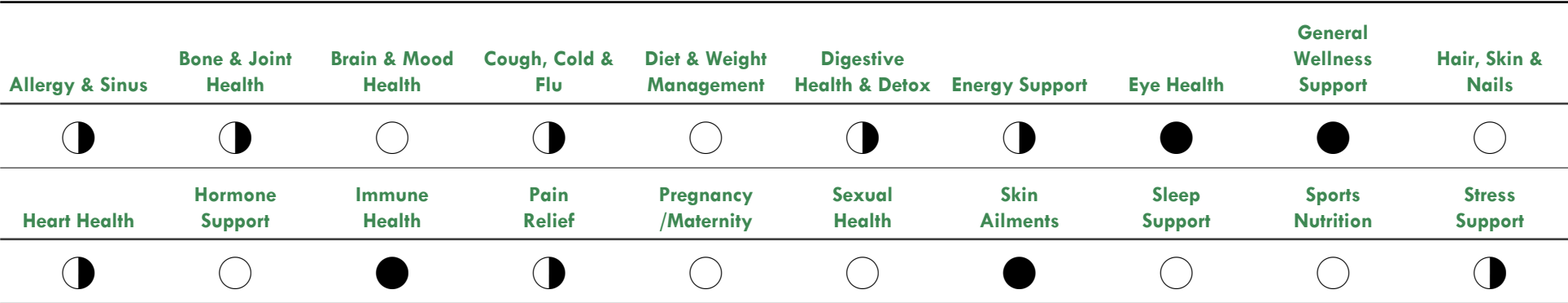
MEDICAL

WHICH BROAD CATEGORIES (FROM A MEDICAL POINT-OF-VIEW) CAN BE TARGETED WITH THIS PLATFORM?



RETAIL

WHICH BROAD CATEGORIES (FROM A RETAIL POINT-OF-VIEW) CAN BE TARGETED WITH THIS PLATFORM?

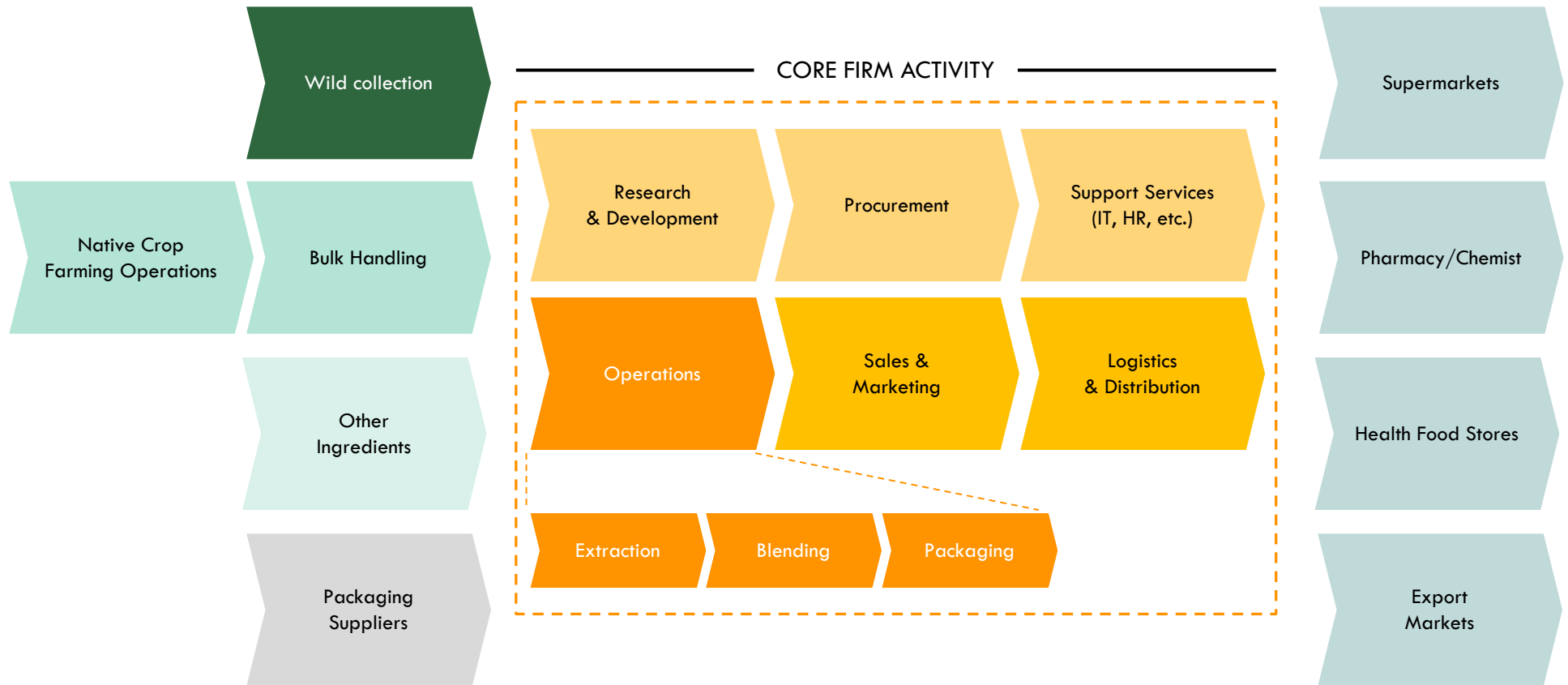


Western Australian bushfoods are well positioned to execute on and deliver key trends

CORIOLIS FOOD & BEVERAGE TRENDScopeSM

TIME SAVING	FAST	EASY OPEN	SOCIAL	INSTA READY	PICTURESQUE
HASSLE FREE	SIMPLIFIES	EASY	REWARDS	FARM TOUR	FUN
LOW EFFORT	CONVENIENCE	RANGE	CONNECTIONS	INVOLVEMENT	ARTISAN
SOLUTIONS	READY TO COOK	READY TO EAT	HAND CRAFTED	SMALL BATCH	SENSORY
MICROWAVE	REUSABLE	STORY TELLING	AUTHENTIC	CELLAR DOOR	AGED
SUPERIOR	RICH FLAVOUR	SPECIAL EDITION	TRADITIONAL	RESPONSIBLE	FAMILY OWNED
DISTINCT	PROMOTED	SPONSOR	CERTIFIED	HEIRLOOM	FAIR TRADE
ENDORSED	PREMIUM	ADVERTISED	PROTECTED	STEWARDSHIP	TRADE AID
FAMOUS	AWARD WINNING	"ESTATE" GROWN	LIFE CYCLE	TRACEABLE	ETHICAL
QUALITY	EXPENSIVE	RARE/UNIQUE	SOCIALLY AWARE	INDIGENOUS	FREE RANGE
LOW FAT	LOW CARB	TRUSTED	LOCAL	NATIVE CROPS	GRASS FED
PROTEIN	FREE FROM	NO HORMONES	LOW INPUT	CARBON ZERO	EARTH FRIENDLY
NUTRACEUTICAL	HEALTH	NATURAL	ECOLOGICAL	SUSTAINABLE	LOW WATER USE
THERAPEUTIC	CHEMICAL FREE	PLANT BASED	BEE FRIENDLY	NITROGEN FIXING	ORGANIC
MEDICINAL	WELLNESS	PALEO	RENEWABLE	BIODYNAMIC	REGENERATIVE

How would the value chain be organised?

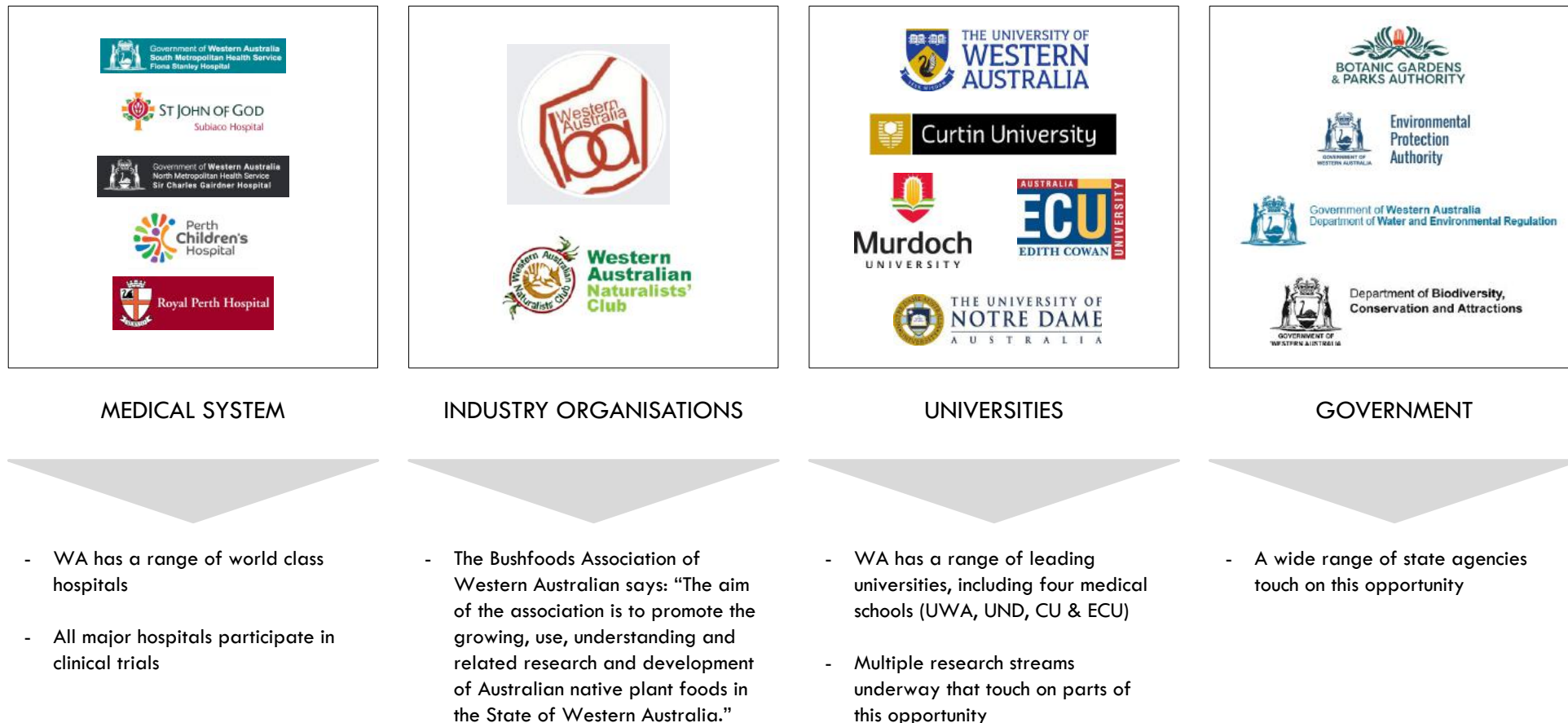


Who are the high potential commercial partners for this opportunity?

				
Firm	KIMBERLEY WILD	TUCKER BUSH	ROOGENIC	WELLNESS PERTH
Relevant product categories	Kakadu plum powders	Edible native plants	Supplements Other foods	Health testing Natural medicine Nutrition

				
Firm	NATURAL PET SUPPLEMENTS	PERTH HEALTH	OXFORD COMPOUNDING	PERRIGO
Relevant product categories	Pet foods	Wellness products wholesaling	Medication compounding	Supplements Other healthcare

Who are the other key stakeholders?



Where is investment required?

1

INVESTING IN POTENTIAL PRODUCT IDENTIFICATION

- Stocktake, review and scan of Western Australian native plants from a health perspective
- What are the most promising for efficacy?

2

INVESTING IN DEMONSTRATING THE **EFFICACY OF FUNCTIONAL INGREDIENTS**

- Solid evidence is required before specific, targeted health claims can be made
- Alternatively, initial products can leverage proven ingredients with accepted claims

3

INVESTING IN REQUIRED **PROCESSING & PACKAGING EQUIPMENT**

- Stocktake of available processing and packaging equipment in the state suited to bushcrop extraction and packing
- Depending on the coalition that develops around this concept, additional equipment will likely be required

What bushcrop based products emerged from Stage I of the screen?

LEMON MYRTLE TEA
TONIC FOR MACULAR
DEGENERATION

KAKADU PLUM BASED
VITAMIN C

KAKADU PLUM
POWDER FOR EYE
HEALTH

KAKADU PLUM
POWDER FOR
TREATING ALZHEIMER'S

QUANDONG KERNEL
SPREAD TO TREAT
INFLAMATION

BUDDA
BUSH/HARLEQUIN
FUCHSIA BUSH
BEVERAGE FOR
THROAT & GUT
INFECTIONS

LEMON MYRTLE TEA TONIC FOR MACULAR DEGENERATION

WHAT IS THE CONCEPT?

The Australian botanical Lemon myrtle is known to support eye health and is a supernutrient for ocular health

GIVE ME THE ELEVATOR PITCH

Cataracts, glaucoma and AMD* are common causes of blindness. Lemon myrtle has been used for thousands of years by Aboriginals for a range of medicinal purposes and recent research shows how it can reduce the risk of ocular disease.

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?	\$5.50/bottle (\$4.50-6.50/bottle) \$55/lt. (\$44-66/lt.)
WHAT SORT OF PACK SIZE?	100mls
WHAT PRODUCT FORM?	Liquid, Drink
WHAT FORM OF PACKAGING?	glass
WHAT MARGINS WILL THE RETAILER TAKE?	40% (45-55%) of retail selling price
WHAT SORT OF PROFITABILITY?	EBITDA \$0.80/unit (\$0.60-1.10/unit) @15% of retail price (10-20%)

WHAT ARE THE KEY CHANNELS?

Supermarkets	✓
Pharmacy/Chemist	✓✓✓✓
Online	✓✓✓✓
Direct sales	-
Duty Free	-
Daigou	-

WHO IS THE COMPETITON?

National firms
Smaller, regional firms

WHAT ARE THE POTENTIAL INGREDIENTS?

Lemon myrtle, kakadu plum, other superfoods for eye health, water, natural sweeteners

WHAT COULD IT LOOK LIKE?




* AMD = Age-Related Macular Degeneration; Photo credit: fair use/fair dealing; low resolution; complete product/brand for illustrative purposes; transformative, criticism, comment, scholarship & research; Source: Company websites, articles, publications, reports; Coriolis research and analysis

LEMON MYRTLE TEA TONIC FOR MACULAR DEGENERATION

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD
Macular eye disease		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO
	The Nutritionist Says	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	The Doctor Says	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					SUPPLY CHAIN
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?					Does or could grow in WA <input checked="" type="radio"/>
<ul style="list-style-type: none"> Lutein is a compound important for eye health and for preventing macular degeneration. Lutein is a naturally occurring carotenoid antioxidant which can reduce the risk of ocular diseases like cataracts and Age-Related Macular Degeneration (AMD) 	<ul style="list-style-type: none"> Grow Lemon Myrtle as ingredient for tea Grow other bush foods as ingredients for tea 					Strength in inputs <input type="radio"/>
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					Capabilities across the chain <input type="radio"/>
Lemon myrtle is very high in antioxidants and a good source of lutein, this has long been used in traditional medicine for eye health.	<ul style="list-style-type: none"> On-going research into medicinal benefits of lemon myrtle Focus on eye disease and dosage 					Clear partners <input type="radio"/>
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					PRIMARY SECTOR
Eye disease is a major issue globally and ongoing research in this space would be beneficial	WA able to grow ingredients Potential to develop IP controlled species Potential for IP controlled formulation Trusted source/Safe supply					Mechanically harvested <input checked="" type="radio"/>
						High performance genetics available <input type="radio"/>
						Proven, scalable production model <input type="radio"/>
						Required skills for success <input type="radio"/>
						PRODUCT CHARACTERISTICS
						Drought tolerant <input type="radio"/>
						Low input production <input type="radio"/>
						Wide range of uses <input checked="" type="radio"/>
						Full product utilisation <input checked="" type="radio"/>
						Indigenous knowledge <input checked="" type="radio"/>
						OVERALL <input checked="" type="radio"/>

KAKADU PLUM BASED VITAMIN C

WHAT IS THE CONCEPT?	Kakadu based Vitamin C to support immune health		WHAT COULD IT LOOK LIKE?
GIVE ME THE ELEVATOR PITCH	Kakadu plum, native to WA and NT, contains 7000mg/100gm of Vitamin C vs orange with 93mg/100g; Vitamin C is vital in metabolic functions and it's antioxidant power protects the body from free radical damage.		
WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?		WHAT ARE THE KEY CHANNELS?	
WHAT SORT OF PRICING?	\$15/30 cap pack (\$12-18/pack) \$600/kg (\$480-720/kg)	Supermarkets	✓
WHAT SORT OF PACK SIZE?	30, 60, 100, caps	Pharmacy/Chemist	✓✓✓✓
WHAT PRODUCT FORM?	Capsules, powders	Online	✓✓✓
WHAT FORM OF PACKAGING?	Plastic, tamper evident seal or cardboard/paper seal	Direct sales	-
WHAT MARGINS WILL THE RETAILER TAKE?	50% (45-55%) of retail selling price	Duty Free	-
WHAT SORT OF PROFITABILITY?	EBITDA \$2.25/unit (\$1.50-3.00/unit) @15% of retail price (10-20%)	Daigou	-
WHAT ARE THE POTENTIAL INGREDIENTS?		WHO IS THE COMPETITON?	
		Smaller, regional firms	

KAKADU PLUM BASED VITAMIN C

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD	
Weak immunities Heart disease Cancer Diabetes		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO	SUPPLY CHAIN
	The Nutritionist Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Does or could grow in WA <div></div>
	The Doctor Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Strength in inputs <div></div>
WHAT DO THE EXPERTS SAY?		WHAT'S IN IT FOR WESTERN AUSTRALIA?					Capabilities across the chain <div></div>
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?		HOW CAN WA FARMERS PARTICIPATE?					Clear partners <div></div>
<ul style="list-style-type: none">Bioflavonoids and vitamin C have antioxidant power that protect cells from free radical damageProtection of cells from oxidative stressAssist collagen formation and normal function of the skinHigh antibacterial, anti-viral		<ul style="list-style-type: none">Kakadu plums are native to WA and NT (Northern Territory)Opportunity to develop a defensible variety high in bioflavonoids and Vitamin C					PRIMARY SECTOR
WHAT DOES THE NUTRITIONIST SAY?		HOW CAN WA SCIENTISTS PARTICIPATE?					Mechanically harvested <div></div>
Many fruits and vegetables contain high levels of flavonoids. Kakadu plum has extremely high levels of Vitamin C		<ul style="list-style-type: none">Research role of kakadu plum flavonoidsClinical trials to document efficacy and significance in disease managementRole of 'raw' ingredients					High performance genetics available <div></div>
WHAT DOES THE DOCTOR SAY?		WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					Proven, scalable production model <div></div>
Vitamin C is known to support immunity and flavonoids known for it's antioxidant potential. Further research is required for the effect of vitamin C on cancer, atherosclerosis, diabetes, neurodegenerative disease is equivocal		WA grown ingredient Potential to develop IP controlled variety IP controlled formulation Trusted source/Safe supply					Required skills for success <div></div>
							PRODUCT CHARACTERISTICS
							Drought tolerant <div></div>
							Low input production <div></div>
							Wide range of uses <div></div>
							Full product utilisation <div></div>
							Indigenous knowledge <div></div>
							OVERALL <div></div>

Source: Company websites, articles, publications, reports; Coriolis research and analysis

KAKADU PLUM POWDER FOR EYE HEALTH

WHAT IS THE CONCEPT?

Kakadu plum and lemon myrtle powder as a smoothie base

GIVE ME THE ELEVATOR PITCH

Degenerative eye diseases effect people especially in their old age. Both Kakadu plum and lemon myrtle contain high levels of lutein (an antioxidant for the retina). WA can grow both plants.

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?

\$35/30g pack (\$28-42/pack)
\$1,170/kg (\$930-1,400/kg)

WHAT SORT OF PACK SIZE?

30g, 100g, 200g, 500g

WHAT PRODUCT FORM?

Freeze-Dry Powder

WHAT FORM OF PACKAGING?

Plastic, tamper evident seal or cardboard/paper seal

WHAT MARGINS WILL THE RETAILER TAKE?

45% (40-50%)
of retail selling price

WHAT SORT OF PROFITABILITY?

EBITDA \$4.20/unit (\$2.50-6.00/unit)
@% of retail price (-%)

WHAT ARE THE KEY CHANNELS?

Supermarkets

✓✓

Pharmacy/Chemist

✓✓✓✓

Online

✓✓✓✓

Direct sales

✓✓

Duty Free

-

Daigou

-

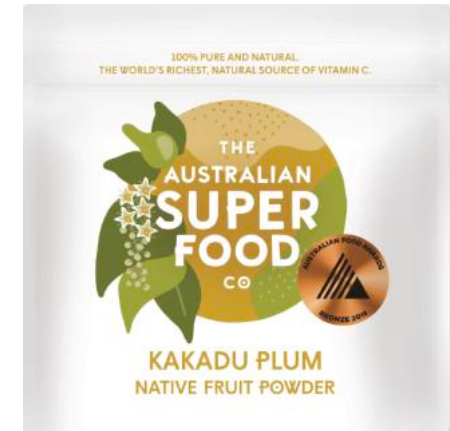
WHO IS THE COMPETITON?

National firms
Smaller, regional firms

WHAT ARE THE POTENTIAL INGREDIENTS?

Kakadu plum, lemon myrtle, vitamin E, zinc oxide, copper

WHAT COULD IT LOOK LIKE?



Insert
EYE HEALTH

KAKADU PLUM POWDER FOR EYE HEALTH

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD	
Eye diseases		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO	SUPPLY CHAIN
	The Nutritionist Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Does or could grow in WA <div></div>
	The Doctor Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Strength in inputs <div></div>
WHAT DO THE EXPERTS SAY?		WHAT'S IN IT FOR WESTERN AUSTRALIA?					Capabilities across the chain <div></div>
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?		HOW CAN WA FARMERS PARTICIPATE?					Clear partners <div></div>
<ul style="list-style-type: none">Lutein is a compound important for eye health and for preventing macular degeneration. Lutein is a naturally occurring carotenoid antioxidant which can reduce the risk of ocular diseases like cataracts and Age-Related Macular Degeneration (AMD)		<ul style="list-style-type: none">Kakaku plums are native to WA and NTGrow kakadu plums for a powder ingredientGrow lemon myrtle as ingredient					PRIMARY SECTOR
WHAT DOES THE NUTRITIONIST SAY?		HOW CAN WA SCIENTISTS PARTICIPATE?					Mechanically harvested <div></div>
Kakadu plum not only has high lutein but very high Vitamin C and vitamin E, these are helpful in maintaining all organ health		<ul style="list-style-type: none">On-going research into medicinal benefits of kakadu plumFocus on eye disease impacts and dosage					High performance genetics available <div></div>
WHAT DOES THE DOCTOR SAY?		WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					Proven, scalable production model <div></div>
Research around the required doses of plant based lutein is required to make any substantial claims. Research is promising.		WA grown ingredients Potential to develop IP controlled products Trusted source/Safe supply					Required skills for success <div></div>
							PRODUCT CHARACTERISTICS
							Drought tolerant <div></div>
							Low input production <div></div>
							Wide range of uses <div></div>
							Full product utilisation <div></div>
							Indigenous knowledge <div></div>
							OVERALL <div></div>

Source: Company websites, articles, publications, reports; Coriolis research and analysis

KAKADU PLUM POWDER FOR TREATING ALZHEIMER'S

WHAT IS THE CONCEPT?

Kakadu plum powder for treating Alzheimer's disease

GIVE ME THE ELEVATOR PITCH

Alzheimer's and brain diseases are a growing issue as the population ages. Kakadu plum contains very high antioxidants – important for brain health. WA can successfully grow and develop this industry.

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?

\$35/30g pack (\$28-42/pack)
\$1,170/kg (\$930-1,400/kg)

WHAT SORT OF PACK SIZE?

30g, 100g, 200g, 500g

WHAT PRODUCT FORM?

Freeze-Dry Powder

WHAT FORM OF PACKAGING?

Plastic, tamper evident seal or cardboard/paper seal

WHAT MARGINS WILL THE RETAILER TAKE?

45% (40-50%)
of retail selling price

WHAT SORT OF PROFITABILITY?

EBITDA \$4.20/unit (\$2.50-6.00/unit)
@% of retail price (-%)

WHAT ARE THE KEY CHANNELS?

Supermarkets

-

Pharmacy/Chemist

✓✓✓✓

Online

✓✓✓✓

Direct sales

✓✓✓✓

Duty Free

-

Daigou

-

WHO IS THE COMPETITION?

National firms
Smaller, regional firms

WHAT ARE THE POTENTIAL INGREDIENTS?

Kakadu plum, other relevant ingredients

WHAT COULD IT LOOK LIKE?





Insert
BRAIN
FUNCTION

KAKADU PLUM POWDER FOR TREATING ALZHEIMER'S

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD
Alzheimer's		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO
	The Nutritionist Says	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
	The Doctor Says	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					SUPPLY CHAIN
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?					Does or could grow in WA
<ul style="list-style-type: none"> Alzheimer's is caused by a toxic agent beta-amyloid, which kills brain cells. These high antioxidants could treat Alzheimer's. 	<ul style="list-style-type: none"> Kakadu plums are native to WA and NT (Northern Territory) Grow/cultivate kakadu plums for a powder ingredient 					Strength in inputs
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					Capabilities across the chain
Kakadu plum has very high Vitamin C and vitamin E, they produce very high antioxidants	<ul style="list-style-type: none"> On-going research into medicinal benefits of kakadu plum 					Clear partners
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					PRIMARY SECTOR
Research is required to link the high antioxidant functions of kakadu plum to brain health. Research is on-going in this area.	WA grown ingredients Potential to develop IP controlled products Trusted source/Safe supply					Mechanically harvested
						High performance genetics available
						Proven, scalable production model
						Required skills for success
						PRODUCT CHARACTERISTICS
						Drought tolerant
						Low input production
						Wide range of uses
						Full product utilisation
						Indigenous knowledge
						OVERALL

QUANDONG KERNEL SPREAD TO TREAT INFLAMMATION

WHAT IS THE CONCEPT?	Quandong kernel paste for inflammation		WHAT COULD IT LOOK LIKE?
GIVE ME THE ELEVATOR PITCH	It's like peanut butter, just made of quandong kernels. Quandong kernel are used for medicinal purposes by traditional peoples across Australia. Quandongs kernels are ground to create powerful antibacterial and anti-inflammatory pastes for treating skin conditions and toothaches, the roots are made into an infusion to treat rheumatism and the leaves to treat stomach aches.		
WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?		WHAT ARE THE KEY CHANNELS?	
WHAT SORT OF PRICING?	\$30/300g (\$34-52/260g) \$100/kg (\$80-120/kg)	Supermarkets	✓✓
WHAT SORT OF PACK SIZE?	260g	Pharmacy/Chemist	✓✓✓✓
WHAT PRODUCT FORM?	Thickened paste	Online	✓✓
WHAT FORM OF PACKAGING?	Glass jar with airtight lid	Direct sales	✓✓
WHAT MARGINS WILL THE RETAILER TAKE?	35% (30-40%) of retail selling price	Duty Free	-
WHAT SORT OF PROFITABILITY?	EBITDA \$3.00/jar (\$1.50-4.50/jar) @10% of retail price	Health Foods Stores	✓✓✓✓
WHAT ARE THE POTENTIAL INGREDIENTS?		WHO IS THE COMPETITON?	
		Other spreads? Other superfoods?	
Ground Quandong Kernels, Salt			

QUANDONG KERNEL SPREAD TO TREAT INFLAMMATION

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD
Inflammation		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO
	The Nutritionist Says	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
	The Doctor Says	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					SUPPLY CHAIN
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?					Does or could grow in WA
<ul style="list-style-type: none"> Quandong kernels are rich in oil and contain large amounts of an unusual fatty acid, trans-11-octadecen-9-ynoic acid (santalbic acid), whose chemical structure is unlike that of normal dietary fatty acids. "the consumption of oil from quandong kernels may cause perturbations in normal fatty acid biochemistry" 	<ul style="list-style-type: none"> Farming quandong (challenging) 					Strength in inputs
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					Capabilities across the chain
Not much to go on here other than traditional wisdom and and "unusual" fatty acid	<ul style="list-style-type: none"> Improving farming systems (plant is hemi-parasitic and requires a host tree) More science on quandong kernels Understanding of mechanism of action Clinical trials to demonstrate efficacy 					Clear partners
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					PRIMARY SECTOR
Come back to me when you have clinical trials or a potential mechanism of action.	WA grown ingredients Potential to develop IP controlled formulations Trusted source/Safe supply					Mechanically harvested
						High performance genetics available
						Proven, scalable production model
						Required skills for success
						PRODUCT CHARACTERISTICS
						Drought tolerant
						Low input production
						Wide range of uses
						Full product utilisation
						Indigenous knowledge
						OVERALL

BUDDA/HARLEQUIN FUCHSIA BUSH BEVERAGE FOR THROAT & GUT INFECTIONS

WHAT IS THE CONCEPT?

Eremophila duttonii has extremely strong antibacterial activity

GIVE ME THE ELEVATOR PITCH

Eremophila duttonii has extremely strong antibacterial activity. It "was the most active and reduced the number of viable cells of methicillin-resistant Staphylococcus aureus (MRSA) and vancomycin-resistant enterococci (VRE) to undetectable levels within 1 hour.

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?

\$20/500ml (\$15-25/500ml)
\$40/l (\$30-50/l)

WHAT SORT OF PACK SIZE?

500ml

WHAT PRODUCT FORM?

Liquid

WHAT FORM OF PACKAGING?

Glass or plastic bottle; foild seal

WHAT MARGINS WILL THE RETAILER TAKE?

40% (35-45%)
of retail selling price

WHAT SORT OF PROFITABILITY?

EBITDA \$3.00/bottle (\$2-4/bottle)
@15% of retail price

WHAT ARE THE KEY CHANNELS?

Supermarkets

✓✓

Pharmacy/Chemist

✓✓✓✓

Online

✓✓

Direct sales

-

Duty Free

-

Daigou

-

WHO IS THE COMPETITON?

Apple cider vinegar?

WHAT ARE THE POTENTIAL INGREDIENTS?

Water, Budda/Harlequin Fuchsia Bush leaf extract, Peppermint, sodium benzoate, potassium sorbate, carboxymethylcellulose sodium

WHAT COULD IT LOOK LIKE?



BUDDA/HARLEQUIN FUCHSIA BUSH BEVERAGE FOR THROAT & GUT INFECTIONS

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD
Infectious microbes		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO
	The Nutritionist Says	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
	The Doctor Says	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					SUPPLY CHAIN
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?					Does or could grow in WA <input checked="" type="radio"/>
<ul style="list-style-type: none"> “Two diterpenes of the serrulatane class present as major constituents of the resinous leaf cuticle: serrulat-14-en-7,8,20-triol and serrulat-14-en-3,7,8,20-tetraol. In addition, a hydroxylated furanosesquiterpene with mild antibacterial activity which appeared to be a novel compound was isolated from the extract and tentatively identified as 4-hydroxy-4-methyl-1-(2,3,4,5-tetrahydro-5-methyl[2,3'-bifuran]-5-yl) pentan-2-one 	<ul style="list-style-type: none"> Pioneering farming of this species 					Strength in inputs <input type="radio"/>
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					Capabilities across the chain <input type="radio"/>
<i>I have some concerns that there are very limited examples of regular or widespread use in humans; more research is clearly required here before distributing this widely.</i>	<ul style="list-style-type: none"> Developing farming systems (only wild collection currently) More science on terpenes and role in health Understanding of mechanism of action Clinical trials to demonstrate efficacy 					Clear partners <input type="radio"/>
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					PRIMARY SECTOR
<i>If it can really kill MRSA* and VRE^, you should probably focus on hospitals rather than consumer products.</i>	WA grown ingredients Potential to develop IP controlled formulations Trusted source/Safe supply					Mechanically harvested <input checked="" type="radio"/>
						High performance genetics available <input type="radio"/>
						Proven, scalable production model <input type="radio"/>
						Required skills for success <input type="radio"/>
						PRODUCT CHARACTERISTICS
						Drought tolerant <input checked="" type="radio"/>
						Low input production <input checked="" type="radio"/>
						Wide range of uses <input type="radio"/>
						Full product utilisation <input type="radio"/>
						Indigenous knowledge <input checked="" type="radio"/>
						OVERALL <input type="radio"/>

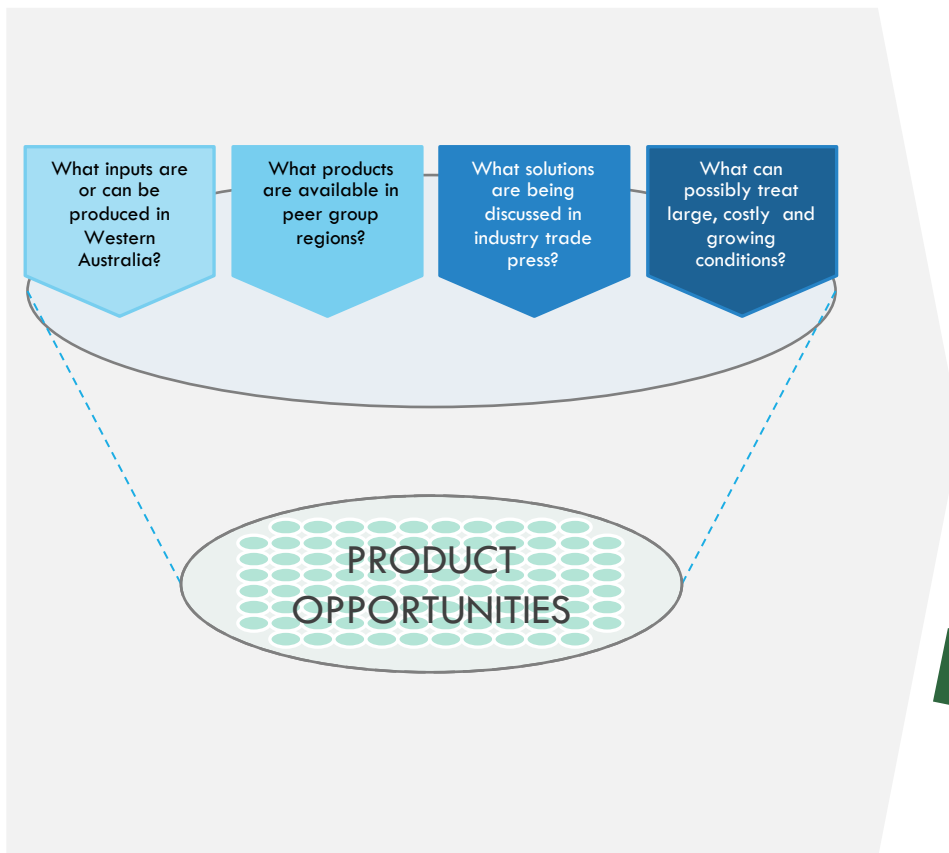
*MRSA = Methicillin-resistant *Staphylococcus aureus* ^VRE = vancomycin-resistant enterococcus; Source: Company websites, articles, publications, reports; Coriolis research and analysis

TABLE OF CONTENTS

page 7	page 17	page 54	page 75	page 105	page 133
<i>Context, Markets and Process</i>	<i>Conditions, Concepts and Challenges</i>	<i>Health Focused Dairy/Alternative Dairy</i>	<i>Oat Extracts</i>	<i>Plant Proteins</i>	<i>Medical/Health Focused Ready Meals</i>
page 161	page 205	page 233	page 262	page 337	
<i>Botanical Waste Streams</i>	<i>Meat Extracts</i>	<i>Bushcrop Extracts</i>	<i>Other Opportunities</i>	<i>Appendix I Markets & Conditions Details</i>	

A range of interesting Foods for Health opportunities emerged in STAGE I of the process, but were not aggregated into the seven platforms; most are clear opportunities for the right person or organisation

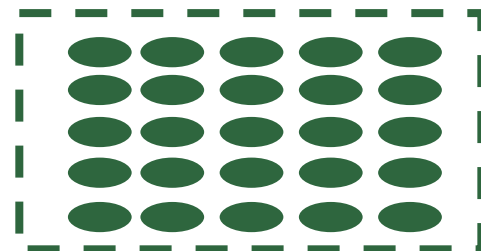
STAGE I: PRODUCT OPPORTUNITIES



STAGE II: BUSINESS OPPORTUNITIES



OTHER OPPORTUNITIES



The other opportunities that emerged from the Stage I screening process are profiled in this section

- High Fibre Instant Drink With Live Bacteria
- Prebiotics & Superfood Drink Mix For Microbiome Support
- Low Protein Pasta For Renal Or Liver Failure
- Lupin Pasta For A Healthy Gut
- Wraps - Low Carb, Low GI And High Fibre For Diabetics
- Low Protein Breads For Inherited Metabolic Disorders
- Lupin Cereal A High Protein Breakfast For Weight Loss
- Lupin Snacks, High In Protein For Increased Satiety
- CBD Containing Snacks For Cognition/Brain
- CBD Containing Gummies For Immune Support
- CBD Containing Coffee For Heart Health
- Plant-based Fat Replacers To Reduce Obesity
- Cranberry And Live Bacteria Capsules For Gut And Womens Health
- Plant Sterols To Reduce LDL* Cholesterol
- Genistein From Soy To Support Breast Cancer
- Soy Isoflavones For Womens Health
- Broccoli Shoot Shots For Antidiabetic Effects
- Broccoli Seed Extract For Reducing Oxidative Stress
- Broccoli Extract For Cognitive Health
- Chokeberry Daily Tonic With Probiotics For Gut Health
- Electrolyte Liquid For Muscle And Nerve Health
- Kefir Beverage Targeting Immunity And Gut Health
- Kefir Beverage For Strong Bones
- Milk Phospholipid Snack For Stress And Anxiety Relief
- Red Algae For Eye Health
- Low Resistant Cassava Starch For Low Carb Diets & Weight Loss
- Nutritionally Complete Meal Replacement For Weight Loss
- Hemp Oil To Reduce Symptoms Of PMS & Menopause
- Hemp Oil For A Healthy Heart
- Saffron, Hempseed Oil & Other Botanicals For Mood
- Mushroom Focus Shot For Anxiety & Depression
- Mushroom Coffee For Brain Health
- Bacopa Monnieri And Other Plants For Brain Health
- Antibacterial Lozenge From Jarrah Honey
- Low GI Jarrah Honey
- Doctor/In-store Nutritionist Providing "Food As Medicine" Prescription

HIGH FIBRE INSTANT DRINK WITH LIVE BACTERIA

WHAT IS THE CONCEPT?

High fibre instant drink powder with live bacteria targeting constipation and gut health

GIVE ME THE ELEVATOR PITCH

Constipation, digestive issues and gut health issues are growing challenge for consumers in Australia and Asia. WA has the skills and capabilities required across the value chain to deliver a compelling product in this space.

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?

\$12.50 (\$10-15)/100g
\$125/kg (\$100-150)/kg

WHAT SORT OF PACK SIZE?

150g, 200g, 500g

WHAT PRODUCT FORM?

Dry Powder

WHAT FORM OF PACKAGING?

Plastic, tamper evident seal or cardboard/paper seal

WHAT MARGINS WILL THE RETAILER TAKE?

40-50%
of retail selling price

WHAT SORT OF PROFITABILITY?

EBITDA \$1.50/unit (\$0.90-2.10/unit)
@12% of retail price (7-17%)

WHAT ARE THE KEY CHANNELS?

Supermarkets

✓✓

Pharmacy/Chemist

✓✓✓✓

Online

✓✓

Direct sales

-

Duty Free

-

Daigou

-

WHO IS THE COMPETITON?

Proctor & Gamble
Smaller, regional firms

WHAT ARE THE POTENTIAL INGREDIENTS?

Psyllium husks (*Plantago ovata* forsk), Inulin (from Chicory *Cichorium intybus*), *Lactobacillus rhamnosus*, *Bifidobacterium bifidum*, *Lactobacillus acidophilus*, *Lactobacillus plantarum*, *Lactobacillus bulgaricus*, natural sweeteners (?), natural flavours

WHAT COULD IT LOOK LIKE?



HIGH FIBRE INSTANT DRINK WITH LIVE BACTERIA

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD
Constipation Chronic digestive disorders “Gut Health”		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO
	The Nutritionist Says	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	The Doctor Says	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					SCORECARD
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?					SUPPLY CHAIN
<ul style="list-style-type: none"> Fibre provides breeding area for bacteria Fibre scrapes the lining of the gut Some bacteria survive the journey through the stomach and grow and thrive in the intestines 	<ul style="list-style-type: none"> Growing <i>Plantago ovata</i> forsk (Psyllium husks) Growing <i>Cichorium intybus</i> var. <i>sativum</i> (chicory for inulin) 					Does or could grow in WA <input checked="" type="radio"/>
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					Strength in inputs <input type="radio"/>
<i>It make sense if you have constipation. A healthy, well-balanced diet full of whole grains, fruit and vegetables should provide all the fibre a person needs. You could buy a lot of broccoli for \$20.</i>	<ul style="list-style-type: none"> Developing new/novel lactobacillus and other bacterium for inclusion Clinical trials to document efficacy 					Capabilities across the chain <input checked="" type="radio"/>
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					Clear partners <input checked="" type="radio"/>
<i>It's not going to do any harm. Products like this clearly work for mild constipation. Most of the bacteria would likely be killed in the stomach. However, if you are having serious gut or constipation issues, you should see your doctor.</i>	<p>WA grown ingredients</p> <p>Potential to develop IP controlled bacteria</p> <p>Trusted source/Safe supply</p>					PRIMARY SECTOR
						Mechanically harvested <input type="radio"/>
						High performance genetics available <input checked="" type="radio"/>
						Proven, scalable production model <input type="radio"/>
						Required skills for success <input checked="" type="radio"/>
						PRODUCT CHARACTERISTICS
						Drought tolerant <input type="radio"/>
						Low input production <input type="radio"/>
						Wide range of uses <input type="radio"/>
						Full product utilisation <input checked="" type="radio"/>
						Indigenous knowledge <input type="radio"/>
						OVERALL <input type="radio"/>

Source: Company websites, articles, publications, reports; Coriolis research and analysis

PREBIOTICS & SUPERFOOD DRINK MIX FOR MICROBIOME SUPPORT

WHAT IS THE CONCEPT?

Fibre, gum acacia, barley grass and a wide range of “superfoods” in an instant drink mix

GIVE ME THE ELEVATOR PITCH

Millions of microorganisms, collectively known as the microbiome, play crucial roles within the body to support overall health and wellness. Prebiotics are well known for supporting healthy bacteria growth, like fertiliser for the good bacteria in the gut. Prebiotics are often non-digestible, but fermentable dietary fibre and oligosaccharides.

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?	\$50/210g (\$40-60/210g) \$240/kg (\$200-300/kg)
WHAT SORT OF PACK SIZE?	210g
WHAT PRODUCT FORM?	Powder
WHAT FORM OF PACKAGING?	Plastic tub with foil seal
WHAT MARGINS WILL THE RETAILER TAKE?	45% (40-50%) of retail selling price
WHAT SORT OF PROFITABILITY?	EBITDA \$6/unit (\$4-8/unit) @12% of retail price

WHAT ARE THE KEY CHANNELS?

Supermarkets	✓✓
Pharmacy/Chemist	✓✓✓✓
Online	✓✓
Direct sales	-
Duty Free	-
Daigou	-

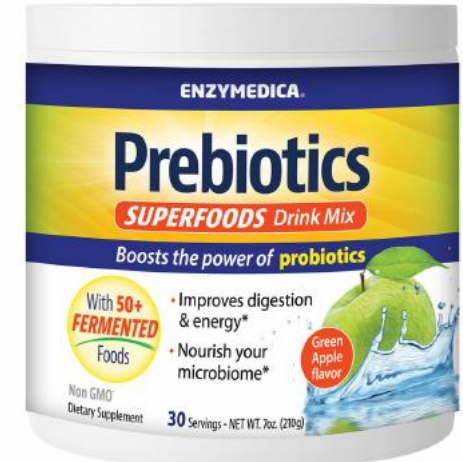
WHO IS THE COMPETITOR?

Small, regional firms

WHAT ARE THE POTENTIAL INGREDIENTS?

Guar fibre, Tapioca fibre, Gum acacia, Galacto-oligosaccharides, Isomalto-oligosaccharides, Fermented barley grass, superfood blend (carrot, brown rice, grape, apple, daikon radish, cabbage, celery, cucumber, banana, onion, burdock, spinach, pear, orange peel, tomato, sweet pepper, bean sprout, eggplant, lotus rhizome, pumpkin, shiitake mushroom, ginger, lettuce, garlic, trefoil, udo, asparagus, bamboo grass, clover, kombu, coltsfoot, dandelion, plantain, pea sprout, Japanese cedar, parsley, turnip, pineapple, strawberry, knotweed, chive, Chinese cabbage, enokitake mushroom, garland chrysanthemum, mugwort, oriental celery, leek, todor fir, green perilla, wakame), Natural green apple flavour, malic acid, Reb A (stevia extract), citric acid.

WHAT COULD IT LOOK LIKE?



PREBIOTICS & SUPERFOOD DRINK MIX FOR MICROBIOME SUPPORT

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD	
Gut health		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO	SUPPLY CHAIN
	The Nutritionist Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Does or could grow in WA <div></div>
	The Doctor Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Strength in inputs <div></div>
WHAT DO THE EXPERTS SAY?		WHAT'S IN IT FOR WESTERN AUSTRALIA?					Capabilities across the chain <div></div>
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?		HOW CAN WA FARMERS PARTICIPATE?					Clear partners <div></div>
<ul style="list-style-type: none">Supplying fibre and essential micronutrients to bacteria living in the gut.		<ul style="list-style-type: none">Grow GuarGrow cassava (for Tapioca)Harvest Gum acaciaGrow a wide range of other “superfoods”					PRIMARY SECTOR
WHAT DOES THE NUTRITIONIST SAY?		HOW CAN WA SCIENTISTS PARTICIPATE?					Mechanically harvested <div></div>
<p><i>You would be better to just to regularly eat a healthy, well-balanced diet.</i></p>		<ul style="list-style-type: none">Further microbiome researchResearch on potential Western Australian native superfoods					High performance genetics available <div></div>
WHAT DOES THE DOCTOR SAY?		WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					Proven, scalable production model <div></div>
<p><i>It probably wont hurt. Our knowledge of the gut microbiome is limited at present and evolving rapidly.</i></p>		<p>WA grown ingredients Trusted source/Safe supply</p>					Required skills for success <div></div>
							PRODUCT CHARACTERISTICS
							Drought tolerant <div></div>
							Low input production <div></div>
							Wide range of uses <div></div>
							Full product utilisation <div></div>
							Indigenous knowledge <div></div>
							OVERALL <div></div>

Source: Company websites, articles, publications, reports; Coriolis research and analysis

LOW PROTEIN PASTA FOR RENAL OR LIVER FAILURE

WHAT IS THE CONCEPT?

Low protein pasta alternative targeting kids with renal or liver failure

GIVE ME THE ELEVATOR PITCH

Renal disease and liver failure effects many people globally. Kids and adults in hospital or at home a require nutritious but low protein diet (including a low protein pasta).

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?

\$10/400g (\$8-12/400g)
\$17/kg (\$13-20/kg)

WHAT SORT OF PACK SIZE?

400g, 500g

WHAT PRODUCT FORM?

Pasta

WHAT FORM OF PACKAGING?

Sealed Plastic
or cardboard/paper seal

WHAT MARGINS WILL THE RETAILER TAKE?

45% (40-50%)
of retail selling price

WHAT SORT OF PROFITABILITY?

EBITDA \$0.70/unit (\$0.40-1.00/unit)
@12% of retail price (7-17%)

WHAT ARE THE KEY CHANNELS?

Supermarkets

-

Pharmacy/Chemist

✓✓✓✓

Online

✓✓

Hospital

✓✓✓✓

Duty Free

-

Daigou

-

WHO IS THE COMPETITON?

Nutricia, Flavis
Smaller, regional firms

WHAT ARE THE POTENTIAL INGREDIENTS?

tapioca starch, potato starch, antioxidant, beta carotene

WHAT COULD IT LOOK LIKE?



LOW PROTEIN PASTA FOR RENAL OR LIVER FAILURE

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD	
Renal failure Liver failure Inherited metabolic disorders		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO	SUPPLY CHAIN
	The Nutritionist Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Does or could grow in WA <div></div>
	The Doctor Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Strength in inputs <div></div>
WHAT DO THE EXPERTS SAY?		WHAT'S IN IT FOR WESTERN AUSTRALIA?					Capabilities across the chain <div></div>
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?		HOW CAN WA FARMERS PARTICIPATE?					Clear partners <div></div>
<ul style="list-style-type: none">Renal and liver conditions require low protein diets. Disease states of either the liver and/or the kidney result in clinically relevant disturbances of protein metabolism.		<ul style="list-style-type: none">Grow ingredients for low protein “pasta”-based meals (cassava, potatoes)					PRIMARY SECTOR
WHAT DOES THE NUTRITIONIST SAY?		HOW CAN WA SCIENTISTS PARTICIPATE?					Mechanically harvested <div></div>
Protein (especially from animals) impacts people with renal/kidney disease and inherited metabolic disorders		<ul style="list-style-type: none">Research low protein ingredients for “pasta” alternatives that are low protein without using the usual (corn and potato starches)					High performance genetics available <div></div>
WHAT DOES THE DOCTOR SAY?		WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					Proven, scalable production model <div></div>
Dietary protein intake is of paramount importance in patients with chronic nephropathy and kidney disease. It is important to understand protein requirements in these cases.		WA grown ingredients Potential to develop IP controlled meal solution Trusted source/Safe supply					Required skills for success <div></div>
							PRODUCT CHARACTERISTICS
							Drought tolerant <div></div>
							Low input production <div></div>
							Wide range of uses <div></div>
							Full product utilisation <div></div>
							Indigenous knowledge <div></div>
							OVERALL <div></div>

Source: Company websites, articles, publications, reports; Coriolis research and analysis

LUPIN PASTA FOR A HEALTHY GUT

WHAT IS THE CONCEPT?

Lupins made into a pulse based pasta, high in fibre and good for the gut.

GIVE ME THE ELEVATOR PITCH

Healthy Gut, Healthy body and mind - Lupin foods, such as Lupin pasta, reduce “transit time”, lower the colon pH and promote the growth of beneficial intestinal bifidobacteria. WA as a leading lupin producing State can lead the way with Lupin-based products

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?	\$2.50/100g (\$2-3/100g)
WHAT SORT OF PACK SIZE?	250g
WHAT PRODUCT FORM?	Pasta
WHAT FORM OF PACKAGING?	Plastic bag, cardboard outer
WHAT MARGINS WILL THE RETAILER TAKE?	35% (30-40%) of retail selling price
WHAT SORT OF PROFITABILITY?	EBITDA \$0.25/unit (\$0.10-0.40/unit) @10% of retail price (5-15%)

WHAT ARE THE KEY CHANNELS?

Supermarkets	✓✓
Pharmacy/Chemist	✓✓✓✓
Online	✓✓
Direct sales	-
Duty Free	-
Daigou	-

WHO IS THE COMPETITON?

Proctor & Gamble
Smaller, regional firms

WHAT ARE THE POTENTIAL INGREDIENTS?

Lupins, (other pulses chickpeas, peas, lentils, mung beans), Lupin flour

WHAT COULD IT LOOK LIKE?



LUPIN PASTA FOR A HEALTHY GUT

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD
Leaky Gut Lower body inflammation Strong gut health		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO
	The Nutritionist Says	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	The Doctor Says	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					SUPPLY CHAIN
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?					Does or could grow in WA <input checked="" type="radio"/>
<ul style="list-style-type: none"> Lupin is high in fibre; fiber is intimately tied with the importance of our gut microbes. More microbes equal lower inflammation and the bacteria aid digestion. 	<ul style="list-style-type: none"> Grow high protein, high fibre varieties of lupin 					Strength in inputs <input checked="" type="radio"/>
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					Capabilities across the chain <input checked="" type="radio"/>
<i>Lupins are high in protein (40%), dietary fibre (37%) and low in carbohydrates (4%), so it fits well into high protein diet in general. The high fibre is good for the gut as long as it isn't destroyed during processing.</i>	<ul style="list-style-type: none"> Breeding for sweeter varieties Continue research into nutritional and health benefits of lupins Assist with NPD development targeting health benefits 					Clear partners <input checked="" type="radio"/>
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					PRIMARY SECTOR
<i>Lupins similar to other legumes play a role in a healthy diet associated with maintaining good health. The high fibre in will certainly support a healthy gut.</i>	WA grown ingredients Global leaders in Lupins Potential to develop IP controlled varieties Trusted source/Safe supply					Mechanically harvested <input checked="" type="radio"/>
						High performance genetics available <input checked="" type="radio"/>
						Proven, scalable production model <input checked="" type="radio"/>
						Required skills for success <input checked="" type="radio"/>
						PRODUCT CHARACTERISTICS
						Drought tolerant <input type="radio"/>
						Low input production <input type="radio"/>
						Wide range of uses <input checked="" type="radio"/>
						Full product utilisation <input checked="" type="radio"/>
						Indigenous knowledge <input type="radio"/>
						OVERALL <input checked="" type="radio"/>

WRAPS - LOW CARB, LOW GI* AND HIGH FIBRE FOR DIABETICS

WHAT IS THE CONCEPT?	Wraps that are Low GI, Low Carb and High in fibre to control blood sugar glucose spikes particularly important for diabetics
GIVE ME THE ELEVATOR PITCH	Diabetes is a significant global condition. Eating foods (like wraps) that are high in fibre, with Low GI and Low Carb can help reduce blood sugar spikes and help manage diabetes.

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?		WHAT ARE THE KEY CHANNELS?	
WHAT SORT OF PRICING?	\$6/pack of 6 (\$5-7/pack) \$17/kg (\$13-20/kg)	Supermarkets	✓✓✓✓
WHAT SORT OF PACK SIZE?	6 pack, 8 pack, 10 pack	Pharmacy/Chemist	-
WHAT PRODUCT FORM?	Wrap	Online	✓✓
WHAT FORM OF PACKAGING?	Plastic, re-sealable top	Direct sales	✓✓
WHAT MARGINS WILL THE RETAILER TAKE?	35% (30-40%) of retail selling price	Duty Free	-
WHAT SORT OF PROFITABILITY?	EBITDA \$0.60/unit (\$0.30-0.90/unit) @10% of retail price (5-15%)	Daigou	-
		WHO IS THE COMPETITON?	
		National/International food brands Mission, Farrah's Smaller, regional firms	

WHAT ARE THE POTENTIAL INGREDIENTS?	Wheat starch, wheat protein, whole wheat, ground flaxseed, oil, others
-------------------------------------	--

WHAT COULD IT LOOK LIKE?

* GI = Glycaemic Index Photo credit: fair use/fair dealing; low resolution; complete product/brand for illustrative purposes; transformative, criticism, comment, scholarship & research; Source: Company websites, articles, publications, reports; Coriolis research and analysis

WRAPS - LOW CARB, LOW GI AND HIGH FIBRE FOR DIABETICS

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD	
Diabetes Gut health		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO	
	The Nutritionist Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	
	The Doctor Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					SUPPLY CHAIN	
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?						Does or could grow in WA <div></div>
<ul style="list-style-type: none">Unable to regulate sugar results in too much sugar circulating in the bloodstream. Eventually, high blood sugar levels can lead to disorders of the circulatory, nervous and immune systems. Your pancreas does not produce enough insulin and cells respond poorly to insulin and take in less sugar.	<ul style="list-style-type: none">Grow ingredients (wheat) for healthy wraps						Strength in inputs <div></div>
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					Capabilities across the chain <div></div>	
<p>Being overweight and inactive certainly contribute to Type II diabetes. A healthy diet of low carb, low GI foods and fresh fruit and vegetables and exercise will definitely help diabetes.</p>	<ul style="list-style-type: none">Assistance in new product development (NPD) for low carb, low GI foods (to replace high GI and carb options)					Clear partners <div></div>	
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					PRIMARY SECTOR	
<p>Diet plays a role in reducing diabetes. It's important that diabetic patients are aware of the role of diet to control diabetes.</p>	<p>WA grown ingredients Potential to develop unique products Trusted source/Safe supply</p>					Mechanically harvested <div></div>	
						High performance genetics available <div></div>	
						Proven, scalable production model <div></div>	
						Required skills for success <div></div>	
						PRODUCT CHARACTERISTICS	
						Drought tolerant <div></div>	
						Low input production <div></div>	
						Wide range of uses <div></div>	
						Full product utilisation <div></div>	
						Indigenous knowledge <div></div>	
						OVERALL <div></div>	

Source: Company websites, articles, publications, reports; Coriolis research and analysis

LOW PROTEIN BREADS FOR INHERITED METABOLIC DISORDERS

WHAT IS THE CONCEPT?

Low protein bread for people requiring low protein diet (with a inherited metabolic disorder)

GIVE ME THE ELEVATOR PITCH

Individuals with Inherited metabolic disorders* such as PKU[^] require a low protein diet for life

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?

\$10/pack (\$8-12/pack)
\$67/kg (\$53-80/kg)

WHAT SORT OF PACK SIZE?

150g

WHAT PRODUCT FORM?

Bread

WHAT FORM OF PACKAGING?

Sealed Plastic
or cardboard/paper seal

WHAT MARGINS WILL THE RETAILER TAKE?

35% (30-40%)
of retail selling price

WHAT SORT OF PROFITABILITY?

EBITDA \$1.00/unit (\$0.50-1.50/unit)
@10% of retail price (5-15%)

WHAT ARE THE KEY CHANNELS?

Supermarkets

-

Pharmacy/Chemist

✓✓✓✓

Online

✓✓

Hospital

✓✓✓✓

Duty Free

-

Daigou

-

WHO IS THE COMPETITON?

Flavis
National and regional firms

WHAT ARE THE POTENTIAL INGREDIENTS?

Tapioca starch, gluten free wheat starch, olive oil, locust bean gum, rice syrup, psyllium husks, apple extract, others

WHAT COULD IT LOOK LIKE?



* Acid-base imbalances, Mitochondrial disease, etc. [^]Phenylketonuria (PKU), fructose intolerance, Maple syrup urine disease (MSUD), Galactosemia; Photo credit: fair use/fair dealing; low resolution; complete product/brand for illustrative purposes; transformative, criticism, comment, scholarship & research; Source: Company websites, articles, publications, reports; Coriolis research and analysis

LOW PROTEIN BREADS FOR INHERITED METABOLIC DISORDERS

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?						SCORECARD	
Inherited metabolic disorders		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO	SUPPLY CHAIN	
	The Nutritionist Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Does or could grow in WA <div></div>	
	The Doctor Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Strength in inputs <div></div>	
WHAT DO THE EXPERTS SAY?		WHAT'S IN IT FOR WESTERN AUSTRALIA?						Capabilities across the chain <div></div>
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?		HOW CAN WA FARMERS PARTICIPATE?						Clear partners <div></div>
<ul style="list-style-type: none">Proteins in our food are digested and broken down to amino acids. Patients accumulate the amino acid phenylalanine in their bodies. The mutated PAH gene encodes for an enzyme called phenylalanine hydroxylase. This enzyme usually breaks phenylalanine down into tyrosine, a building block for neurotransmitters like dopamine.		<ul style="list-style-type: none">Grow ingredients for low protein “pasta”-based meals (cassava, potatoes)						PRIMARY SECTOR
WHAT DOES THE NUTRITIONIST SAY?		HOW CAN WA SCIENTISTS PARTICIPATE?						Mechanically harvested <div></div>
Patients with PKU require a specialised diet low in protein		<ul style="list-style-type: none">Research low protein ingredients for “pasta” alternatives that are low protein without using the usual (corn and potato starches)						High performance genetics available <div></div>
WHAT DOES THE DOCTOR SAY?		WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?						Proven, scalable production model <div></div>
Metabolic disorders such as PKU require a low protein diet. If the condition worsens it can cause irreversible brain damage and behavioral problems		WA grown ingredients Potential to develop IP controlled meal solution Trusted source/Safe supply						Required skills for success <div></div>
								PRODUCT CHARACTERISTICS
								Drought tolerant <div></div>
								Low input production <div></div>
								Wide range of uses <div></div>
								Full product utilisation <div></div>
								Indigenous knowledge <div></div>
								OVERALL <div></div>

LUPIN CEREAL A HIGH PROTEIN BREAKFAST FOR WEIGHT LOSS

WHAT IS THE CONCEPT?

A protein found in lupins may treat diabetes. Lupin cereal provides an easy/accessible vehicle.

GIVE ME THE ELEVATOR PITCH

Obesity is a leading cause of many chronic diseases globally. Lupins are low GI, low carb, high protein, gut healthy, high fibre and contain 40% protein. Lupins combined with other superfoods and fruit can lead the way as a healthy cereal. As the global leader in lupins with 80% production, WA can lead the way across all lupin ingredients, products and research.

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?

\$8/425g box (\$6.40-9.60/box)
\$19/kg (\$15-23/kg)

WHAT SORT OF PACK SIZE?

100g, 200g, 425g

WHAT PRODUCT FORM?

Cereal

WHAT FORM OF PACKAGING?

Plastic bag, and cardboard box/paper seal

WHAT MARGINS WILL THE RETAILER TAKE?

35% (30-40%)
of retail selling price

WHAT SORT OF PROFITABILITY?

EBITDA \$0.80/unit (\$0.40-1.20/unit)
@10% of retail price (5-15%)

WHAT ARE THE POTENTIAL INGREDIENTS?

Lupins, chia, quinoa, hemp, kakadu plum, cacao, carob, riberry, coconut

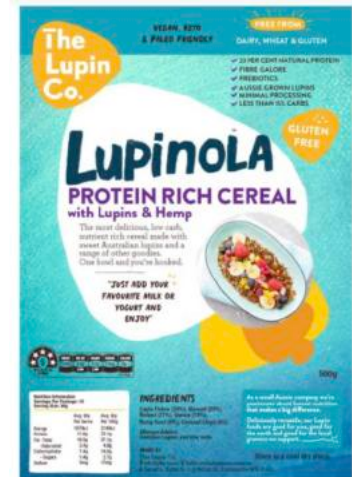
WHAT ARE THE KEY CHANNELS?

Supermarkets	✓✓✓✓
Pharmacy/Chemist	✓✓✓✓
Online	✓✓✓
Direct sales	-
Duty Free	-
Daigou	-

WHO IS THE COMPETITON?

National firms
Smaller, regional firms

WHAT COULD IT LOOK LIKE?



LUPIN CEREAL A HIGH PROTEIN BREAKFAST FOR WEIGHT LOSS

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD
Spikes in blood sugars Diabetes Heart Disease		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO
	The Nutritionist Says	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	The Doctor Says	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					SUPPLY CHAIN
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?					Does or could grow in WA <input checked="" type="radio"/>
<ul style="list-style-type: none"> A protein found in lupins controls the level of insulin the body produces. Gamma-conglutin, one of the proteins of lupin beans that in small doses reduces blood sugar, is responsible for this regulatory effect. 	<ul style="list-style-type: none"> Grow specific lupins for medicinal purposes 					Strength in inputs <input checked="" type="radio"/>
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					Capabilities across the chain <input checked="" type="radio"/>
<i>Lupins are high in protein (40%), dietary fibre (37%) and low in carbohydrates (4%), so it fits well into high protein diet in general.</i>	<ul style="list-style-type: none"> Breeding for sweeter varieties On-going research into functionality of range of processed lupins for food industry New product development into snacking, and baked products for a high protein diet 					Clear partners <input checked="" type="radio"/>
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					PRIMARY SECTOR
<i>Lupins similar to other legumes play a role in a healthy diet associated with maintaining good health and losing weight.</i>	WA grown ingredients Potential to develop strong brands and products Trusted source/Safe supply					Mechanically harvested <input checked="" type="radio"/>
						High performance genetics available <input checked="" type="radio"/>
						Proven, scalable production model <input checked="" type="radio"/>
						Required skills for success <input checked="" type="radio"/>
						PRODUCT CHARACTERISTICS
						Drought tolerant <input type="radio"/>
						Low input production <input type="radio"/>
						Wide range of uses <input checked="" type="radio"/>
						Full product utilisation <input checked="" type="radio"/>
						Indigenous knowledge <input type="radio"/>
						OVERALL <input checked="" type="radio"/>

LUPIN SNACKS, HIGH IN PROTEIN FOR INCREASED SATIETY

WHAT IS THE CONCEPT?

Lupins can be made into a healthy snack that can aid weight loss

GIVE ME THE ELEVATOR PITCH

Overeating is a global issue, healthy snacks are a good solution. Lupins are high in protein (40%), Fibre (37%) and low in carbs (4%); making it a great snack to make you feel full for longer, aiding those looking to lose weight

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?

\$5/100g (\$4-6/100g)
\$50/kg (\$40-60/kg)

WHAT SORT OF PACK SIZE?

100g, 150g

WHAT PRODUCT FORM?

Extruded baked 'chip'

WHAT FORM OF PACKAGING?

Foil, plastic

WHAT MARGINS WILL THE RETAILER TAKE?

35% (30-40%)
of retail selling price

WHAT SORT OF PROFITABILITY?

EBITDA \$0.50/unit (\$0.30-0.80/unit)
@10% of retail price (5-15%)

WHAT ARE THE KEY CHANNELS?

Supermarkets

✓✓✓✓

Pharmacy/Chemist

-

Online

✓✓

Direct sales

✓✓

Duty Free

-

Daigou

-

WHO IS THE COMPETITION?

PepsiCo, Lays
National, Regional firms

WHAT ARE THE POTENTIAL INGREDIENTS?

Lupins, Rice, Corn, Flour, Chia Seeds, Flavouring

WHAT COULD IT LOOK LIKE?





LUPIN SNACKS, HIGH IN PROTEIN FOR INCREASED SATIETY

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD
Overeating Obesity Diabetes		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO
	The Nutritionist Says	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	The Doctor Says	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					SUPPLY CHAIN
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?					Does or could grow in WA <input checked="" type="radio"/>
<ul style="list-style-type: none"> A protein found in lupins controls the level of insulin the body produces. Gamma-conglutin, one of the proteins of lupin beans that in small doses reduces blood sugar, is responsible for this regulatory effect. Lupin contain all the essential amino acids. 	<ul style="list-style-type: none"> Grow high protein, high fibre varieties of lupin 					Strength in inputs <input checked="" type="radio"/>
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					Capabilities across the chain <input type="radio"/>
Lupins are high in protein (40%), dietary fibre (37%) and low in carbohydrates (4%), so it fits well into high protein diet in general.	<ul style="list-style-type: none"> Breeding for sweeter varieties Continue research into nutritional and health benefits of lupins Assist with NPD development targeting health benefits 					Clear partners <input checked="" type="radio"/>
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					PRIMARY SECTOR
Lupins similar to other legumes play a role in a healthy diet associated with maintaining good health and losing weight.	WA grown ingredients Global leaders in Lupins Potential to develop IP controlled varieties Trusted source/Safe supply					Mechanically harvested <input checked="" type="radio"/>
						High performance genetics available <input checked="" type="radio"/>
						Proven, scalable production model <input checked="" type="radio"/>
						Required skills for success <input checked="" type="radio"/>
						PRODUCT CHARACTERISTICS
						Drought tolerant <input type="radio"/>
						Low input production <input type="radio"/>
						Wide range of uses <input checked="" type="radio"/>
						Full product utilisation <input checked="" type="radio"/>
						Indigenous knowledge <input type="radio"/>
						OVERALL <input checked="" type="radio"/>

CBD* CONTAINING SNACKS FOR COGNITION/BRAIN

WHAT IS THE CONCEPT?	Chocolate with added CDB			WHAT COULD IT LOOK LIKE?
GIVE ME THE ELEVATOR PITCH	Putting together a “superfood” (cocoa), and ancient grain (quinoa) and cannabidiol (CBD) in a tasty treat. “Not only can this chocolate delight satisfy your special someone’s taste buds, stress tends to fade away and relaxation becomes easy.”			
WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?		WHAT ARE THE KEY CHANNELS?		
WHAT SORT OF PRICING?	\$30/66g (\$24-36/66g) \$455/kg (\$360-550/kg)	Supermarkets	✓✓✓✓	
WHAT SORT OF PACK SIZE?	66g	Pharmacy/Chemist	✓✓	
WHAT PRODUCT FORM?	chocolate bar/pieces with added active ingredients	Online	✓✓✓✓	
WHAT FORM OF PACKAGING?	Box with liner or plastic tube	Direct sales	✓	
WHAT MARGINS WILL THE RETAILER TAKE?	35% (30-40%) of retail selling price	Duty Free	-	
WHAT SORT OF PROFITABILITY?	EBITDA \$3.00/unit (\$1.50-4.50/unit) @10% of retail price	Daigou	-	
		WHO IS THE COMPETITON?		
		Wide range of startups in approved jurisdictions Not yet present in Australian market		
WHAT ARE THE POTENTIAL INGREDIENTS?	Bitter-Sweet Chocolate (Chocolate Liquor, Sugar, Cocoa Butter, Panela Sugar, Soy Lecithin, Natural Flavor), Organic Quinoa, Cannabidiol (2%)			





CBD* CONTAINING SNACKS FOR COGNITION/BRAIN

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD
Stress, anxiety, generalised brain health		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO
	The Nutritionist Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>
	The Doctor Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?					
<ul style="list-style-type: none">Unclear at this point.Appears to be an antagonist to a number of neuroreceptors.The oral bioavailability of cannabidiol is approximately 6% in humans.	<ul style="list-style-type: none">Growing industrial hemp for CBDPotentially growing cocoa in the far North (modest success ongoing in Northern Queensland)Scaling up existing quinoa production in WA					
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					
Chocolate isn't exactly healthy and the science around CBD is a work in progress.	<ul style="list-style-type: none">Better understanding of CBDClinical trials around various claims					
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					
I suppose it is cheaper than prozac and likely with fewer side effects.	WA grown ingredients Potential to develop IP controlled bacteria Trusted source/Safe supply					
SUPPLY CHAIN						
Does or could grow in WA					<div></div>	
Strength in inputs					<div></div>	
Capabilities across the chain					<div></div>	
Clear partners					<div></div>	
PRIMARY SECTOR						
Mechanically harvested					<div></div>	
High performance genetics available					<div></div>	
Proven, scalable production model					<div></div>	
Required skills for success					<div></div>	
PRODUCT CHARACTERISTICS						
Drought tolerant					<div></div>	
Low input production					<div></div>	
Wide range of uses					<div></div>	
Full product utilisation					<div></div>	
Indigenous knowledge					<div></div>	
OVERALL						
<div></div>						

CBD* CONTAINING GUMMIES FOR IMMUNE SUPPORT

WHAT IS THE CONCEPT?

Adding cannabidiol (CBD) to gummies to provide immune support for travellers.

GIVE ME THE ELEVATOR PITCH

This past year has made clear that airports are infested with COVID and other diseases. Pop a CBD gummy before you get on that flight to give your immune system a boost. As an added bonus, the CBD will also relax you so you don't stress about the risks.

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?

\$25/60 gummies (\$20-30/60)
\$290/kg (\$240-350/kg)

WHAT SORT OF PACK SIZE?

150g

WHAT PRODUCT FORM?

Candy or lolly

WHAT FORM OF PACKAGING?

Plastic or glass jar; tamper evident seal

WHAT MARGINS WILL THE RETAILER TAKE?

50%
of retail selling price

WHAT SORT OF PROFITABILITY?

EBITDA \$3.75/unit
@15% of retail price

WHAT ARE THE KEY CHANNELS?

Supermarkets

-

Pharmacy/Chemist

✓✓

Online

✓✓✓

Direct sales

✓✓

Duty Free

✓✓✓✓

Daigou

-

WHO IS THE COMPETITION?

Wide range of startups in approved jurisdictions
Not yet present in Australian market

WHAT ARE THE POTENTIAL INGREDIENTS?

CBD (5mg), Vitamin A, C, D, E, B3, B12, Folic Acid, Biotin Pantothenic Acid, Iodine, Zinc, Glucose Syrup, Sugar, Pectin, Citric Acid, Natural Flavors, Grape Juice Concentrate, Elderberry Juice Concentrate, Annatto, Coconut Oil, Carnauba Wax

WHAT COULD IT LOOK LIKE?



CBD* CONTAINING GUMMIES FOR IMMUNE SUPPORT

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD
Immune support against risk of infectious disease transmission at airports		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO
	The Nutritionist Says	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
	The Doctor Says	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					SUPPLY CHAIN
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?					Does or could grow in WA
<ul style="list-style-type: none"> Unclear at this point. Appears to be an antagonist to a number of neuroreceptors. The oral bioavailability of cannabidiol is approximately 6% in humans. 	<ul style="list-style-type: none"> Growing industrial hemp for CBD 					Strength in inputs
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					Capabilities across the chain
<i>I'm struggling with the concept of CBD-infused candy being a food for health.</i>	<ul style="list-style-type: none"> Better understanding of CBD Clinical trials around various claims 					Clear partners
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					PRIMARY SECTOR
<i>The evidence for CBD doing anything for the immune system is limited. I imagine the real effect is to calm a person nervous about flying. Probably a better solution than anything a doctor would prescribe.</i>	WA grown ingredients Trusted source/Safe supply Predictable regulations/rule-of-law					Mechanically harvested
						High performance genetics available
						Proven, scalable production model
						Required skills for success
						PRODUCT CHARACTERISTICS
						Drought tolerant
						Low input production
						Wide range of uses
						Full product utilisation
						Indigenous knowledge
						OVERALL

CBD* CONTAINING COFFEE FOR HEART HEALTH

WHAT IS THE CONCEPT?	Coffee with added CBD			WHAT COULD IT LOOK LIKE?
GIVE ME THE ELEVATOR PITCH	Emerging science shows that coffee is good for heart health. This coffee that will “wake you up and chill you out” while supporting heart health. “A brand new coffee experience that might just make the most chill and simultaneously alert person in your home or office.”			
WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?		WHAT ARE THE KEY CHANNELS?		
WHAT SORT OF PRICING?	\$35/300g (\$24-36/66g) \$/kg (\$360-550/kg)	Supermarkets	✓✓✓	
WHAT SORT OF PACK SIZE?	300g	Pharmacy/Chemist	✓	
WHAT PRODUCT FORM?	Coffee with added CBD	Online	✓✓✓✓	
WHAT FORM OF PACKAGING?	Lined paper, plastic or foil bag or pouch	Direct sales	-	
WHAT MARGINS WILL THE RETAILER TAKE?	35% (30-40%) of retail selling price	Duty Free	-	
WHAT SORT OF PROFITABILITY?	EBITDA \$3.50/unit (\$1.80-5.30/unit) @10% of retail price	Daigou	-	
		WHO IS THE COMPETITON?		
		Wide range of startups in approved jurisdictions Not yet present in Australian market		
WHAT ARE THE POTENTIAL INGREDIENTS?	Single origin, shade grown, low-acid coffee grounds, cannabidiol (2%)			



CBD* CONTAINING COFFEE FOR HEART HEALTH

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD
Stress/Anxiety Generalised brain health		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO
	The Nutritionist Says	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
	The Doctor Says	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					SUPPLY CHAIN
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?					Does or could grow in WA <input type="radio"/>
<ul style="list-style-type: none"> A 2012 meta-analysis concluded that people who drank moderate amounts of coffee had a lower rate of heart failure (biggest effect for those who drank four+ cups a day) CBD mechanism unclear at this point; appears to be an antagonist to a number of neuroreceptors 	<ul style="list-style-type: none"> Growing industrial hemp for CBD Potentially growing coffee in the far North (modest success ongoing in Northern Queensland) 					Strength in inputs <input type="radio"/>
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					Capabilities across the chain <input type="radio"/>
There is growing awareness of the positive effects of coffee, but I'm not sold on adding CBD.	<ul style="list-style-type: none"> Better understanding of CBD Clinical trials around various claims 					Clear partners <input checked="" type="radio"/>
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					PRIMARY SECTOR
Coffee and heart health is reasonably solid, but the CBD side needs work.	WA grown ingredients Trusted source/Safe supply Predictable regulations/rule-of-law					Mechanically harvested <input type="radio"/>
						High performance genetics available <input type="radio"/>
						Proven, scalable production model <input type="radio"/>
						Required skills for success <input checked="" type="radio"/>
						PRODUCT CHARACTERISTICS
						Drought tolerant <input type="radio"/>
						Low input production <input type="radio"/>
						Wide range of uses <input checked="" type="radio"/>
						Full product utilisation <input checked="" type="radio"/>
						Indigenous knowledge <input type="radio"/>
						OVERALL <input type="radio"/>

PLANT-BASED FAT REPLACERS TO REDUCE OBESITY

WHAT IS THE CONCEPT?

Plant-based low fat alternatives to reduce calories

GIVE ME THE ELEVATOR PITCH

Obesity and obesity related diseases (diabetes, CVD etc.) are a major condition globally. Substituting with plant based fat alternative reduces calories and cholesterol. WA can develop a alternative fat to use as a food ingredient.

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?

\$7/450g (\$6-8/450g)
\$16/kg (\$12-19/kg)

WHAT SORT OF PACK SIZE?

500g, 1kg

WHAT PRODUCT FORM?

Spreadable solid fat

WHAT FORM OF PACKAGING?

Plastic,
or cardboard/paper seal

WHAT MARGINS WILL THE RETAILER TAKE?

35% (30-40%)
of retail selling price

WHAT SORT OF PROFITABILITY?

EBITDA \$0.70/unit (\$0.40-1.10/unit)
@10% of retail price (5-15%)

WHAT ARE THE KEY CHANNELS?

Supermarkets

✓✓

Pharmacy/Chemist

-

Online

✓✓

Direct sales

-

Duty Free

-

Ingredient

✓✓✓✓

WHO IS THE COMPETITON?

Epogee
National firms

WHAT ARE THE POTENTIAL INGREDIENTS?

Linseed (rapeseed) oil

WHAT COULD IT LOOK LIKE?

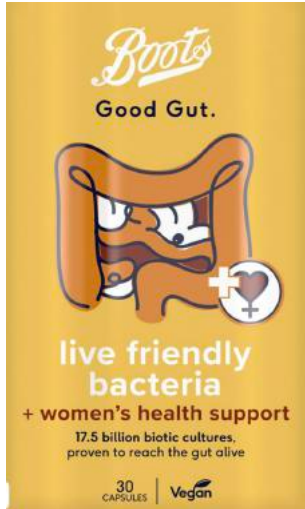



PLANT-BASED FAT REPLACERS TO REDUCE OBESITY

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD
Obesity High caloric diet		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO
	The Nutritionist Says	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	The Doctor Says	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					SUPPLY CHAIN
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?					Does or could grow in WA
<ul style="list-style-type: none"> Fewer calories = less obesity Family of fat- and oil-like substances that resemble triglycerides in structure and appearance, but have been modified to prevent or limit their digestion when consumed in food 	<ul style="list-style-type: none"> Grow oil based seeds (like linseed) to use as base 					Strength in inputs
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					Capabilities across the chain
Reducing fat calories from 9/gm to 0.7/gm makes it a pretty useful ingredient if you are cutting calories.	<ul style="list-style-type: none"> Research the process to make a material that looks, feels, tastes and cooks like fat (e.g. Epogee) but without the calories 					Clear partners
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					PRIMARY SECTOR
As long as the product is safe in the long term then reducing fat-based caloric intake will help reduce obesity.	<p>WA grown ingredients</p> <p>Potential to develop IP controlled process</p> <p>Trusted source/Safe supply</p>					Mechanically harvested
						High performance genetics available
						Proven, scalable production model
						Required skills for success
						PRODUCT CHARACTERISTICS
						Drought tolerant
						Low input production
						Wide range of uses
						Full product utilisation
						Indigenous knowledge
						OVERALL

Source: Company websites, articles, publications, reports; Coriolis research and analysis

CRANBERRY AND LIVE BACTERIA CAPSULES FOR GUT AND WOMENS HEALTH

WHAT IS THE CONCEPT?	Billions of live bacteria a normal part of the vaginal flora, cranberry extract and vitamin B6 to regulate hormonal activity to support womens health			WHAT COULD IT LOOK LIKE?
GIVE ME THE ELEVATOR PITCH	70% of immune cells are found in the gut, a healthy gut results in good health. This bacteria and ingredients target women’s issues. WA has the ability to produce this product.			
WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?		WHAT ARE THE KEY CHANNELS?		
WHAT SORT OF PRICING?	\$30/60 cap jar (\$24-36/jar) \$600/kg (\$500-700/kg)	Supermarkets	✓✓	
WHAT SORT OF PACK SIZE?	30, 60, 100 caps	Pharmacy/Chemist	✓✓✓✓	
WHAT PRODUCT FORM?	Vege Capsule	Online	✓✓	
WHAT FORM OF PACKAGING?	Plastic, tamper evident seal or cardboard/paper seal	Direct sales	-	
WHAT MARGINS WILL THE RETAILER TAKE?	50% (45-55%) of retail selling price	Duty Free	-	
WHAT SORT OF PROFITABILITY?	EBITDA \$4.50/unit (\$3-6/unit) @15% of retail price (10-20%)	Daigou	-	
		WHO IS THE COMPETITON?		
WHAT ARE THE POTENTIAL INGREDIENTS?	Lactic acid bacteria, Cranberry Extract (Vaccinium Macrocarpon), Anti-Caking Agents (Silicon Dioxide, Magnesium Stearate, Tricalcium Phosphate), Corn Maltodextrin, Magnesium Hydroxide, Vitamin B6 (Pyridoxine Hydrochloride).			

CRANBERRY AND LIVE BACTERIA CAPSULES FOR GUT AND WOMENS HEALTH

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD
Women's health (vaginal, urinary, digestive and immune health)		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO
	The Nutritionist Says	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
	The Doctor Says	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					SUPPLY CHAIN
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?					Does or could grow in WA
<ul style="list-style-type: none"> Cranberry supports women's health Vitamin B6 supports hormone regulation Live bacteria targeting a healthy vagina 	<ul style="list-style-type: none"> Grow cranberries as ingredient for womens health products 					Strength in inputs
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					Capabilities across the chain
While there is evidence of cranberries on UTI, there is limited evidence of <i>Lactobacillus</i> helping with vaginal health	<ul style="list-style-type: none"> Grow range of Lactic acid bacteria, required as ingredients for women's health (gut health in general) 					Clear partners
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					PRIMARY SECTOR
There is limited evidence to support the effectiveness of lactic acid bacteria's on vaginal health, antibiotics and antifungals are recommended	<p>WA ingredients</p> <p>Potential to develop IP controlled bacteria</p> <p>Trusted source/Safe supply</p>					Mechanically harvested
						High performance genetics available
						Proven, scalable production model
						Required skills for success
						PRODUCT CHARACTERISTICS
						Drought tolerant
						Low input production
						Wide range of uses
						Full product utilisation
						Indigenous knowledge
						OVERALL

PLANT STEROLS TO REDUCE LDL* CHOLESTEROL

WHAT IS THE CONCEPT?

Plant sterols in capsules to help lower LDL cholesterol

GIVE ME THE ELEVATOR PITCH

Heart attack and stroke are associated with high LDL Cholesterol. Plant sterols are known to reduce LDL cholesterol. Dietary supplements allow for controlled intake of phytosterols vs fortified foods.

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?

\$25/100 cap jar (\$20-30/jar)
\$300/kg (\$240-360/kg)

WHAT SORT OF PACK SIZE?

60, 90, 110 caps

WHAT PRODUCT FORM?

Capsule

WHAT FORM OF PACKAGING?

Plastic, tamper evident seal

WHAT MARGINS WILL THE RETAILER TAKE?

50% (45-55%)
of retail selling price

WHAT SORT OF PROFITABILITY?

EBITDA \$3.75/unit (\$2.50-5.00/unit)
@15% of retail price (10-20%)

WHAT ARE THE KEY CHANNELS?

Supermarkets

✓✓

Pharmacy/Chemist

✓✓✓✓

Online

✓✓

Direct sales

-

Duty Free

-

Daigou

-

WHO IS THE COMPETITON?

Blue Bonnet, Nature Made
Smaller, regional firms

WHAT ARE THE POTENTIAL INGREDIENTS?

Plant sterols from one or more sources (vegetable oils, nuts, seeds, linseeds, fruits, vegetables, legumes, cereal grains), beta-sitosterol, campesterol, stigmasterol etc.

WHAT COULD IT LOOK LIKE?



From Soy



From Red Yeast Rice

PLANT STEROLS TO REDUCE LDL* CHOLESTEROL

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD	
Lowering high cholesterol Lowering risk of heart disease		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO	SUPPLY CHAIN
	The Nutritionist Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Does or could grow in WA <div></div>
	The Doctor Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Strength in inputs <div></div>
WHAT DO THE EXPERTS SAY?		WHAT'S IN IT FOR WESTERN AUSTRALIA?					Capabilities across the chain <div></div>
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?		HOW CAN WA FARMERS PARTICIPATE?					Clear partners <div></div>
<ul style="list-style-type: none">Plant sterols or phytosterols are molecules (found in plant cell membranes) related to cholesterol.Phytosterol compete for the same enzymes as cholesterol in your gut, effectively preventing cholesterol being absorbedThe liver produces cholesterol, saturated and trans fats cause the liver to produce more cholesterol		<ul style="list-style-type: none">Grow plants high in plant sterols that can be extracted and used as a supplement					PRIMARY SECTOR
WHAT DOES THE NUTRITIONIST SAY?		HOW CAN WA SCIENTISTS PARTICIPATE?					Mechanically harvested <div></div>
<p>While plant naturally contain sterol, they won't impact your cholesterol levels. You need to consume at least 2 grams of plant sterols per day to lower your cholesterol. That needs to be in something fortified or supplements. People who eat vegetable oils and fortified foods, probably receive enough phytosterols.</p>		<ul style="list-style-type: none">Research effective process of extracting plant sterolsResearch role of specific plant sterols in reducing LDL cholesterol levelsOngoing research required on impact on heart disease					High performance genetics available <div></div>
WHAT DOES THE DOCTOR SAY?		WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					Proven, scalable production model <div></div>
<p>It is proven that sterols can reduce LDL cholesterol. High cholesterol is associated with an increased risk of heart disease but not the cause of heart disease. However some institutes discourage the use of plant sterols for heart disease prevention</p>		<p>WA grown ingredients</p> <p>Potential to develop IP controlled plant sterol supplement to control intake</p> <p>Trusted source/Safe supply</p>					Required skills for success <div></div>
							PRODUCT CHARACTERISTICS
							Drought tolerant <div></div>
							Low input production <div></div>
							Wide range of uses <div></div>
							Full product utilisation <div></div>
							Indigenous knowledge <div></div>
							OVERALL <div></div>

*LDL = Low-density Lipoprotein; Source: Company websites, articles, publications, reports; Coriolis research and analysis

GENISTEIN FROM SOY TO SUPPORT BREAST CANCER

WHAT IS THE CONCEPT?

Soy milk beverage with added Genistein to support breast cancer

GIVE ME THE ELEVATOR PITCH

There were an estimated 2.2m new global cases of breast cancer in 2020* (the largest group of cancers (11.7%)). WA has the skills and experience to develop a fortified soy milk beverage

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?

\$8/l (\$6-10/l)

WHAT SORT OF PACK SIZE?

250ml, 500ml, 1L

WHAT PRODUCT FORM?

Beverage

WHAT FORM OF PACKAGING?

Plastic, glass, tetrapak

WHAT MARGINS WILL THE RETAILER TAKE?

40% (35-45%)
of retail selling price

WHAT SORT OF PROFITABILITY?

EBITDA \$1.20/unit (\$0.80-1.60/unit)
@15% of retail price (10-20%)

WHAT ARE THE KEY CHANNELS?

Supermarkets

✓✓✓✓

Pharmacy/Chemist

✓✓✓

Online

✓✓✓

Direct sales

✓

Duty Free

-

Daigou

-

WHO IS THE COMPETITION?

National firms
Smaller, regional firms

WHAT ARE THE POTENTIAL INGREDIENTS?

Soy milk, Genistein, flavours, natural sweeteners, other

WHAT COULD IT LOOK LIKE?



* GlobalCan2020; Photo credit: fair use/fair dealing; low resolution; complete product/brand for illustrative purposes; transformative, criticism, comment, scholarship & research; Source: Company websites, articles, publications, reports; Coriolis research and analysis

GENISTEIN FROM SOY TO SUPPORT BREAST CANCER

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD
Breast Cancer Prostrate Cancer		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO
	The Nutritionist Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>
	The Doctor Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					SUPPLY CHAIN
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?					
<ul style="list-style-type: none">Genistein, a soy-derived isoflavone, has a protective role in relation to BRCA1*, which is a gene that can suppress tumor development.Phytochemicals also important in impacting the survival and initiation of cancer stem cells	<ul style="list-style-type: none">WA farmers grow soybeans for use in dietary supplementsTrials to maximise genistein in soybeans (been shown to range from 5.6 to 276 mg/100 g in mature beans)					
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					PRIMARY SECTOR
Soy products have been attributed to lower incidence of breast and prostrate cancer in Asian populations	<ul style="list-style-type: none">Ongoing trials into impact of genistein on breast cancerResearch into best extraction processResearch into potential food applications and dietary supplementsResearch dosage requirements (currently large range), plus absorption and metabolism etc.					Mechanically harvested
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					High performance genetics available
Genistein binds with estrogen receptor ER-β thereby contributing a favorable role in the treatment of hormone-related cancers. More research is required on polyphenols to fully understand its potential	WA grown ingredients Potential to develop high genistein IP controlled soy Clinical trials Trusted source/Safe supply					Proven, scalable production model
						Required skills for success
						PRODUCT CHARACTERISTICS
						Drought tolerant
						Low input production
						Wide range of uses
						Full product utilisation
						Indigenous knowledge
						OVERALL

* BRCA1 = Breast Cancer Type 1-Human gene (caretaker gene); Source: Company websites, articles, publications, reports; Coriolis research and analysis

SOY ISOFLAVONES FOR WOMENS HEALTH

WHAT IS THE CONCEPT?	Soy Isoflavones to relieve symptoms of menopause		WHAT COULD IT LOOK LIKE?
GIVE ME THE ELEVATOR PITCH	Many women suffer from the symptoms of menopause due to a drop in estrogen levels (hot flushes, night sweats, mood swings). WA has the capabilities to take a product to market in this category.		
WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?		WHAT ARE THE KEY CHANNELS?	
WHAT SORT OF PRICING?	\$25/100 cap jar (\$20-30 jar) \$300kg (\$240-360/kg)		Supermarkets ✓✓
WHAT SORT OF PACK SIZE?	60, 100 caps 50mg to 5,000mg		Pharmacy/Chemist ✓✓✓
WHAT PRODUCT FORM?	Capsules		Online ✓✓✓✓
WHAT FORM OF PACKAGING?	Plastic, tamper evident seal Plastic sealed bag		Direct sales ✓✓✓
WHAT MARGINS WILL THE RETAILER TAKE?	50% (45-55%) of retail selling price		Duty Free -
WHAT SORT OF PROFITABILITY?	EBITDA \$3.75/unit (\$2.50-5.00/unit) @15% of retail price (10-20%)		Daigou -
WHAT ARE THE POTENTIAL INGREDIENTS?		WHO IS THE COMPETITON?	
		National firms Smaller, regional firms	
		Soy isoflavones	





SOY ISOFLAVONES FOR WOMENS HEALTH

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD
Menopause symptoms Bone health		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO
	The Nutritionist Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>
	The Doctor Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					SUPPLY CHAIN
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?					
<ul style="list-style-type: none">Isoflavones are part of a group of plant-based chemicals called phytoestrogens. These chemicals act like a weaker form of estrogen in the body. Isoflavones bind to the same receptors as estrogen and mimic the effects	<ul style="list-style-type: none">WA farmers grow soybeans for use in dietary supplementsTrials to maximise genistein in soybeans (been shown to range from 5.6 to 276 mg/100 g in mature beans)					
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					PRIMARY SECTOR
<p><i>Soy products have been attributed to impacting estrogen related symptoms in women, these effects vary between populations, for example Asian populations have lower rates of hot flushes.</i></p>	<ul style="list-style-type: none">Ongoing trials into impact of soy isoflavones on women's health issuesResearch into best extraction processResearch into potential food applications and dietary supplements					Mechanically harvested
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					High performance genetics available
<p><i>Some people may respond to soy isoflavones and have a reduction in the symptoms of menopause but they will not be as effective as hormone replacement therapy.</i></p>	<p>WA grown ingredients Potential to develop high genistein IP controlled soy Clinical trials Trusted source/Safe supply</p>					Proven, scalable production model
						Required skills for success
						PRODUCT CHARACTERISTICS
						Drought tolerant
						Low input production
						Wide range of uses
						Full product utilisation
						Indigenous knowledge
						OVERALL

BROCCOLI SHOOT SHOTS FOR ANTIDIABETIC EFFECTS

WHAT IS THE CONCEPT?	Broccoli sprouts shots (containing sulforaphane) to reduce Type II diabetes			WHAT COULD IT LOOK LIKE?
GIVE ME THE ELEVATOR PITCH	Type 2 diabetes is a chronic disease affecting millions of people worldwide, effecting the bodies ability to provide healthy blood sugar levels. Vegetables high in Sulforaphane such as broccoli and kale are shown to reduce high blood sugar levels. WA has a successful vegetable industry.			
WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?		WHAT ARE THE KEY CHANNELS?		
WHAT SORT OF PRICING?	\$5/60ml (\$4-6/50ml)	Supermarkets	✓✓	
WHAT SORT OF PACK SIZE?	60mls	Pharmacy/Chemist	✓✓✓✓	
WHAT PRODUCT FORM?	Liquid, Drink	Online	✓✓✓	
WHAT FORM OF PACKAGING?	Plastic, glass, steel tamper evident seal	Direct sales	✓✓✓	
WHAT MARGINS WILL THE RETAILER TAKE?	40% (35-45%) of retail selling price	Duty Free	-	
WHAT SORT OF PROFITABILITY?	EBITDA \$0.75/unit (\$0.50-1.00/unit) @15% of retail price (10-20%)	Daigou	-	
		WHO IS THE COMPETITON?		
		Juice and beverage firms generally Regional “juice shot” startups		
WHAT ARE THE POTENTIAL INGREDIENTS?	Broccoli shoots (extract), Kale, Cabbage (fruit) (sulforaphane in sprouts ~1153mg/100g dry weight vs full grown broccoli ~44-171mg/100g dry weight)			





BROCCOLI SHOOT SHOTS FOR ANTIDIABETIC EFFECTS

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD	
Type II diabetes		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO	SUPPLY CHAIN
	The Nutritionist Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Does or could grow in WA <div></div>
	The Doctor Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Strength in inputs <div></div>
WHAT DO THE EXPERTS SAY?		WHAT'S IN IT FOR WESTERN AUSTRALIA?					Capabilities across the chain <div></div>
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?		HOW CAN WA FARMERS PARTICIPATE?					Clear partners <div></div>
<ul style="list-style-type: none">Sulforaphane is a sulfur-rich compound found in cruciferous vegetables like broccoli. It is activated when the plant is damaged and glucoraphanin contacts myrosinase.		<ul style="list-style-type: none">Grow broccoli and broccoli shoots to process for the shotsGrow kale					PRIMARY SECTOR
WHAT DOES THE NUTRITIONIST SAY?		HOW CAN WA SCIENTISTS PARTICIPATE?					Mechanically harvested <div></div>
<p>A healthy range of fruit and vegetables is good for your health. A good diet is essential to managing diabetes</p>		<ul style="list-style-type: none">Ongoing trials into impact of sulforaphane on lowering blood sugarsResearch into best extraction and processes to maintain high levels of Sulforaphane (given raw has highest amounts)Research into potential additional food applicationsResearch into required dosages for effect					High performance genetics available <div></div>
WHAT DOES THE DOCTOR SAY?		WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					Proven, scalable production model <div></div>
<p>Diet can play a role in controlling diabetes, but this must be in conjunction with a range of remedies.</p>		<p>WA grown ingredients</p> <p>Potential to develop high Sulforaphane IP controlled species</p> <p>Trusted source/Safe supply</p>					Required skills for success <div></div>
PRODUCT CHARACTERISTICS							
Drought tolerant <div></div>							
Low input production <div></div>							
Wide range of uses <div></div>							
Full product utilisation <div></div>							
Indigenous knowledge <div></div>							
OVERALL <div></div>							

BROCCOLI SEED EXTRACT FOR REDUCING OXIDATIVE STRESS

WHAT IS THE CONCEPT?	A broccoli seed extract (containing sulforaphane) detox to prevent cancer (carcinogenesis)			WHAT COULD IT LOOK LIKE?
GIVE ME THE ELEVATOR PITCH	Broccoli seed extract (containing sulforaphane) is a powerful antioxidant that aids the detoxification process in the body to prevent cancer starting (carcinogenesis). It prompts your body to create it's own antioxidants WA has a successful vegetable industry that can support this product.			
WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?		WHAT ARE THE KEY CHANNELS?		
WHAT SORT OF PRICING?	\$25/100 cap jar (\$20-30/jar) \$300/kg (\$240-360/kg)	Supermarkets	✓✓	
WHAT SORT OF PACK SIZE?	60, 90, 100 caps	Pharmacy/Chemist	✓✓✓✓	
WHAT PRODUCT FORM?	Capsule	Online	✓✓✓	
WHAT FORM OF PACKAGING?	Plastic, tamper evident seal	Direct sales	✓✓✓	
WHAT MARGINS WILL THE RETAILER TAKE?	50% (45-55%) of retail selling price	Duty Free	-	
WHAT SORT OF PROFITABILITY?	EBITDA \$3.75/unit (\$2.50-5.00/unit) @15% of retail price (10-20%)	Daigou	-	
		WHO IS THE COMPETITON?		
		National Brand Smaller, regional firms		
WHAT ARE THE POTENTIAL INGREDIENTS?	Broccoli seed extract, Broccoli sprout extract, mustard seed			

BROCCOLI SEED EXTRACT FOR REDUCING OXIDATIVE STRESS

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD
Oxidative Stress Cancer		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO
	The Nutritionist Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>
	The Doctor Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?					
<ul style="list-style-type: none">Sulforaphane is a sulfur-rich compound found in cruciferous vegetables like broccoli. The SFN induces Phase I and II enzymes involved in detoxification processes of chemical carcinogens in order to prevent the start of carcinogenesis. It also presents anti-tumor action (pre cancer)	<ul style="list-style-type: none">Grow broccoli and broccoli shoots to process for the shotsGrow kale					
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					
<i>A healthy range of fruit and vegetables is good for your health. Broccoli is known for it's health properties but more conclusive research is required before we claim it prevents cancer</i>	<ul style="list-style-type: none">Ongoing trials into sulforaphanes antioxidant role in cancer preventionResearch into best extraction and purifying to maintain high levels of Sulforaphane (given raw has highest amounts)Research into potential additional food applicationsResearch into required dosages for effect					
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					
<i>The effects on health and the possible connections among different diet constituents in humans must be carefully studied to understand the molecular mechanisms responsible for the antioxidant effect.</i>	WA grown ingredients Potential to develop high Sulforaphane IP controlled species or extraction process Trusted source/Safe supply					
SUPPLY CHAIN						
Does or could grow in WA						<div></div>
Strength in inputs						<div></div>
Capabilities across the chain						<div></div>
Clear partners						<div></div>
PRIMARY SECTOR						
Mechanically harvested						<div></div>
High performance genetics available						<div></div>
Proven, scalable production model						<div></div>
Required skills for success						<div></div>
PRODUCT CHARACTERISTICS						
Drought tolerant						<div></div>
Low input production						<div></div>
Wide range of uses						<div></div>
Full product utilisation						<div></div>
Indigenous knowledge						<div></div>
OVERALL						<div></div>

BROCCOLI EXTRACT FOR COGNITIVE HEALTH

WHAT IS THE
CONCEPT?

Broccoli seed extract containing sulforaphane targeting brain health

GIVE ME THE
ELEVATOR PITCH

A large number of people suffer cognitive issues through brain injuries. Broccoli seed extract (containing sulforaphane) offers cellular protection in several models of brain injury plus aids learning. WA has a successful vegetable industry that can support this product.

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF
PRICING?

\$25/50 cap jar (\$20-30/jar)
\$600/kg (\$480-720/kg)

WHAT SORT OF PACK
SIZE?

60, 90, 100 caps

WHAT PRODUCT FORM?

Capsule

WHAT FORM OF
PACKAGING?

Plastic, tamper evident seal

WHAT MARGINS WILL
THE RETAILER TAKE?

50% (45-55%)
of retail selling price

WHAT SORT OF
PROFITABILITY?

EBITDA \$3.75/unit (\$2.50-5.00/unit)
@15% of retail price (10-20%)

WHAT ARE THE KEY CHANNELS?

Supermarkets

✓✓

Pharmacy/Chemist

✓✓✓✓

Online

✓✓✓

Direct sales

✓✓✓

Duty Free

-

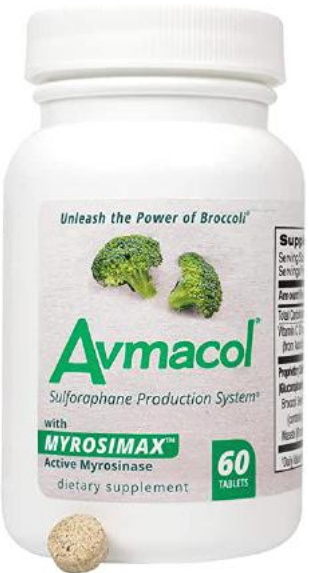
Daigou

-

WHO IS THE COMPETITON?

National Brand
Smaller, regional firms

WHAT COULD IT LOOK LIKE?





WHAT ARE THE
POTENTIAL
INGREDIENTS?

Broccoli seed extract, Broccoli sprout extract, mustard seed (60-100mg/day)

BROCCOLI EXTRACT FOR COGNITIVE HEALTH

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD
Cognitive Health Brain Disease		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO
	The Nutritionist Says	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
	The Doctor Says	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					SUPPLY CHAIN
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?					Does or could grow in WA <input checked="" type="radio"/>
<ul style="list-style-type: none"> Sulforaphane crosses the BBB (Blood-Brain Barrier) and positively effects the brain. It reduces cerebral edema, and improves memory and learning for patients with frontal brain damage 	<ul style="list-style-type: none"> Grow broccoli seed and broccoli sprouts to process 					Strength in inputs <input checked="" type="radio"/>
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					Capabilities across the chain <input type="radio"/>
Broccoli is known for it's health properties but more conclusive research is required before we claim it as a nootropic.	<ul style="list-style-type: none"> Ongoing trials into sulforaphanes antioxidant role in cognitive health Research into best extraction and purifying to maintain high levels of Sulforaphane (given raw has highest amounts) Research into potential additional food applications Research into required dosages for effect 					Clear partners <input type="radio"/>
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					PRIMARY SECTOR
Sulforaphane can significantly improve spatial localisation and working memory impairment after brain injury, as it crosses the blood-brain-barrier.	WA grown ingredients Potential to develop high Sulforaphane IP controlled species or extraction process Trusted source/Safe supply					Mechanically harvested <input checked="" type="radio"/>
						High performance genetics available <input checked="" type="radio"/>
						Proven, scalable production model <input checked="" type="radio"/>
						Required skills for success <input checked="" type="radio"/>
						PRODUCT CHARACTERISTICS
						Drought tolerant <input type="radio"/>
						Low input production <input type="radio"/>
						Wide range of uses <input checked="" type="radio"/>
						Full product utilisation <input checked="" type="radio"/>
						Indigenous knowledge <input type="radio"/>
						OVERALL <input checked="" type="radio"/>

CHOKEBERRY DAILY TONIC WITH PROBIOTICS FOR GUT HEALTH


WHAT IS THE CONCEPT?	Various berries (chokeberry, blueberry and blackcurrants), herbs and microorganisms in a sweetened syrup and a daily tonic		WHAT COULD IT LOOK LIKE?
GIVE ME THE ELEVATOR PITCH	Bacteria and berries delivered in a sweetened concentrate for daily gut health support		
WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?		WHAT ARE THE KEY CHANNELS?	
WHAT SORT OF PRICING?	\$32/500ml (\$26-38/500ml) \$64/l (\$50-80/l)	Supermarkets	✓
WHAT SORT OF PACK SIZE?	500ml	Pharmacy/Chemist	✓✓✓✓
WHAT PRODUCT FORM?	Liquid concentrate	Online	✓✓✓✓
WHAT FORM OF PACKAGING?	Glass jar; tamper evident seal	Direct sales	-
WHAT MARGINS WILL THE RETAILER TAKE?	40% (35-45%) of retail selling price	Duty Free	-
WHAT SORT OF PROFITABILITY?	EBITDA \$4.80/unit (\$3.20-6.40/unit) @15% of retail price	Daigou	-
		WHO IS THE COMPETITON?	
WHAT ARE THE POTENTIAL INGREDIENTS?		Smaller, regional firms	
		 	
		<p>Water, fermented molasses, Erythritol, blackcurrant concentrate, aronia concentrate, blueberry juice, herbs (anise, basil, fenugreek, dill, juniper, fennel, elder, ginger, angelica, chervil, liquorice root, oregano, peppermint, parsley, roman chamomile, rosemary, sage, large nettle, thyme), strains of microorganisms (Bifidobacterium lactis, Bifidobacterium longum, Lactobacillus acidophilus, Lactobacillus casei, Lactobacillus rhamnosus, Lactobacillus salivarius, Lactococcus lactis, Streptococcus thermophilus)</p>	

CHOKEBERRY DAILY TONIC WITH PROBIOTICS FOR GUT HEALTH

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD
Digestive disorders		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO
	The Nutritionist Says	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	The Doctor Says	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					SUPPLY CHAIN
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?					Does or could grow in WA
<ul style="list-style-type: none"> Dense contents of polyphenols in black pigmentation; science for these a work-in-progress; unclear current mechanism of action Introduced bacteria recolonize the gut with health-positive strains 	<ul style="list-style-type: none"> Growing black chokeberries (<i>Aronia melanocarpa</i>) in Great Southern and other southern parts of the state Growing blueberries and blackcurrants in southern parts of the state 					Strength in inputs
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					Capabilities across the chain
<i>Gut bacteria and dark berries are relatively well understood as contributors to gut health. Whether this concentration would have efficacy is an open question.</i>	<ul style="list-style-type: none"> Better understanding of effects of polyphenols ("the metabolism of polyphenols cannot be assessed in vivo") Developing new strains of gut friendly bacteria Breeding to develop improved chokeberries 					Clear partners
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					PRIMARY SECTOR
<i>The science behind the polyphenol component needs more work before I'd advise this to anyone.</i>	WA grown ingredients Trusted source/Safe supply					Mechanically harvested
						High performance genetics available
						Proven, scalable production model
						Required skills for success
						PRODUCT CHARACTERISTICS
						Drought tolerant
						Low input production
						Wide range of uses
						Full product utilisation
						Indigenous knowledge
						OVERALL

ELECTROLYTE LIQUID FOR MUSCLE AND NERVE HEALTH

WHAT IS THE CONCEPT?	Minerals in water			WHAT COULD IT LOOK LIKE?
GIVE ME THE ELEVATOR PITCH	Mining meets supplements. Clean, green Western Australia seawater (or lovingly harvested mineral salts) in water. If we can't win here, we should pack up and go home.			
WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?		WHAT ARE THE KEY CHANNELS?		
WHAT SORT OF PRICING?	\$62/480ml (\$-/) \$130/l (\$100-150/l)	Supermarkets	✓✓	
WHAT SORT OF PACK SIZE?	30ml, 120ml, 240ml, 480ml	Pharmacy/Chemist	✓✓✓✓	
WHAT PRODUCT FORM?	Salty liquid	Online	✓✓	
WHAT FORM OF PACKAGING?	Plastic bottle; foil seal	Direct sales	-	
WHAT MARGINS WILL THE RETAILER TAKE?	40% (35-45%) of retail selling price	Duty Free	-	
WHAT SORT OF PROFITABILITY?	EBITDA \$9.30/480ml (\$6-12/480ml) @15%+ of retail price	Daigou	-	
		WHO IS THE COMPETITON?		
		Imports Small, regional firms		
WHAT ARE THE POTENTIAL INGREDIENTS?	Water, Sodium, Potassium, Magnesium, Chloride and up to 70 other naturally occurring minerals and trace elements in a sea mineral concentrate			





ELECTROLYTE LIQUID FOR MUSCLE AND NERVE HEALTH

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD
Muscles and nervous system		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO
	The Nutritionist Says	●	○	○	○	○
	The Doctor Says	●	○	○	○	○
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					SUPPLY CHAIN
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS MINERS PARTICIPATE?					Does or could grow in WA
<ul style="list-style-type: none"> Essential minerals for required for human health 	<ul style="list-style-type: none"> Mine appropriate minerals suitable for this use 					●
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					Strength in inputs
Electrolytes are well understood.	<ul style="list-style-type: none"> Identification of natural sources of appropriate minerals in Western Australia (e.g. salt flats) 					●
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					Capabilities across the chain
Magnesium and other minerals for muscle and nervous system health is solid science.	WA grown ingredients Trusted source/Safe supply					●
						Clear partners
						●
						PRIMARY SECTOR
						Mechanically harvested
						●
						High performance genetics available
						Proven, scalable production model
						●
						Required skills for success
						●
						PRODUCT CHARACTERISTICS
						Drought tolerant
						●
						Low input production
						●
						Wide range of uses
						●
						Full product utilisation
						●
						Indigenous knowledge
						○
						OVERALL
						●

Source: Company websites, articles, publications, reports; Coriolis research and analysis

KEFIR BEVERAGE TARGETING IMMUNITY AND GUT HEALTH

WHAT IS THE CONCEPT?	Kefir beverage range that targets key health conditions using unique WA flavours and ingredients			WHAT COULD IT LOOK LIKE?
GIVE ME THE ELEVATOR PITCH	Kefir beverages can be used to support a healthy gut and immunity – high in probiotics then are also antibacterial. A healthy gut supports a healthy and stronger body reducing risk factors associated with cancer, digestive issues, ulcers & bone health			
WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?		WHAT ARE THE KEY CHANNELS?		
WHAT SORT OF PRICING?	\$4.50/375ml (\$4-5/375ml)	Supermarkets	✓✓✓✓	
WHAT SORT OF PACK SIZE?	375ml, 500ml	Pharmacy/Chemist	✓✓	
WHAT PRODUCT FORM?	Drink (milk, shake, smoothie)	Online	✓✓✓✓	
WHAT FORM OF PACKAGING?	Glass or plastic, tamper evident seal	Direct sales	✓✓✓	
WHAT MARGINS WILL THE RETAILER TAKE?	40% (35-45%) of retail selling price	Duty Free	-	
WHAT SORT OF PROFITABILITY?	EBITDA \$0.68/unit (\$0.50-0.90/unit) @15% of retail price (10-20%)	Daigou	-	
		WHO IS THE COMPETITON?		
		National firms Smaller, regional firms		
WHAT ARE THE POTENTIAL INGREDIENTS?	Cow milk, (powder, skim) live cultures, kakadu plum, Davidson plus, native lime, others, Jarrah honey			





KEFIR BEVERAGE TARGETING IMMUNITY AND GUT HEALTH

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD
Immunity Gut Health/Digestion		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO
	The Nutritionist Says	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
	The Doctor Says	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					SUPPLY CHAIN
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?					Does or could grow in WA <input checked="" type="radio"/>
<ul style="list-style-type: none"> The grains' lactic acid bacteria turn the milk's lactose into lactic acid. Kefir grains contain up to around 60 strains of yeast and bacteria. Probiotics also stimulate your immune system and restore the balance of friendly bacteria in your gut. 	<ul style="list-style-type: none"> Dairy cows milk used for key ingredient in kefir Potential for goat milk 					Strength in inputs <input checked="" type="radio"/>
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					Capabilities across the chain <input checked="" type="radio"/>
Kefir is certainly trendy at the moment. High in nutrients and probiotics it is shown to be beneficial for digestion and gut health.	<ul style="list-style-type: none"> On-going research into benefits of kefir on targeted conditions Research into live cultures targeting conditions 					Clear partners <input checked="" type="radio"/>
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					PRIMARY SECTOR
Kefir certainly contains probiotics and is antibacterial; further research is required on medicinal dosages; targeted research required beyond test tube studies	WA grown/produced ingredients Utilise WA unique ingredients Potential to develop IP controlled bacteria as ingredient Trusted source/Safe supply					Mechanically harvested <input checked="" type="radio"/>
						High performance genetics available <input checked="" type="radio"/>
						Proven, scalable production model <input checked="" type="radio"/>
						Required skills for success <input checked="" type="radio"/>
						PRODUCT CHARACTERISTICS
						Drought tolerant <input type="radio"/>
						Low input production <input type="radio"/>
						Wide range of uses <input type="radio"/>
						Full product utilisation <input checked="" type="radio"/>
						Indigenous knowledge <input type="radio"/>
						OVERALL <input checked="" type="radio"/>

Source: Company websites, articles, publications, reports; Coriolis research and analysis

KEFIR BEVERAGE FOR STRONG BONES

WHAT IS THE CONCEPT?

Kefir beverage range that targets, amongst other things, strong bones for the elderly

GIVE ME THE ELEVATOR PITCH

Kefir beverages can be used for general daily wellness— high in probiotics for a healthy gut, in addition they are also a great source of calcium and vitamin K, reducing the risk of fractures in the elderly.

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?

\$4.50/375ml (\$4-5/375ml)

WHAT SORT OF PACK SIZE?

375ml, 500ml

WHAT PRODUCT FORM?

Drink (milk, shake, smoothie)

WHAT FORM OF PACKAGING?

Glass or plastic, tamper evident seal

WHAT MARGINS WILL THE RETAILER TAKE?

40% (35-45%)
of retail selling price

WHAT SORT OF PROFITABILITY?

EBITDA \$0.68/unit (\$0.50-0.90/unit)
@15% of retail price (10-20%)

WHAT ARE THE KEY CHANNELS?

Supermarkets

✓✓✓

Pharmacy/Chemist

✓✓✓

Online

✓✓✓

Direct sales

✓✓✓

Age Care facilities

✓✓✓✓

Daigou

-

WHO IS THE COMPETITON?

MNC's, National firms
Regional firms

WHAT ARE THE POTENTIAL INGREDIENTS?

Cow milk, (powder, skim) live cultures, Jarrah honey, Vitamin K2

WHAT COULD IT LOOK LIKE?



KEFIR BEVERAGE FOR STRONG BONES

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD	
Bone health Osteoporosis		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO	SUPPLY CHAIN
	The Nutritionist Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Does or could grow in WA <div></div>
	The Doctor Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Strength in inputs <div></div>
WHAT DO THE EXPERTS SAY?		WHAT'S IN IT FOR WESTERN AUSTRALIA?					Capabilities across the chain <div></div>
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?		HOW CAN WA FARMERS PARTICIPATE?					Clear partners <div></div>
<ul style="list-style-type: none">Calcium is a key nutrient in the human body, important in bone health; Vitamin K has a role in calcium metabolism		<ul style="list-style-type: none">Dairy cows milk used for key ingredient in kefirPotential for goat milk					PRIMARY SECTOR
WHAT DOES THE NUTRITIONIST SAY?		HOW CAN WA SCIENTISTS PARTICIPATE?					Mechanically harvested <div></div>
<p><i>Kefir – the fermented beverage is certainly trendy at the moment. High in nutrients and probiotics it is shown to be beneficial for digestion and gut health, the calcium improves bone health.</i></p>		<ul style="list-style-type: none">On-going research into benefits of kefir on targeted conditionsResearch into live cultures targeting conditions					High performance genetics available <div></div>
WHAT DOES THE DOCTOR SAY?		WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					Proven, scalable production model <div></div>
<p><i>Calcium and specifically vitamin k2 with it's role in calcium metabolism assists with bone health; further research is required on medicinal dosages required to prevent fractures and slow osteoporosis.</i></p>		<p>WA grown/produced ingredients Utilise WA unique ingredients Potential to develop IP controlled bacteria as ingredient Trusted source/Safe supply</p>					Required skills for success <div></div>
							PRODUCT CHARACTERISTICS
							Drought tolerant <div></div>
							Low input production <div></div>
							Wide range of uses <div></div>
							Full product utilisation <div></div>
							Indigenous knowledge <div></div>
							OVERALL <div></div>

Source: Company websites, articles, publications, reports; Coriolis research and analysis

MILK PHOSPHOLIPID SNACK FOR STRESS AND ANXIETY RELIEF

WHAT IS THE CONCEPT?

High phospholipids nutritional bar targeting stress and anxiety

GIVE ME THE ELEVATOR PITCH

With growing levels of stress and anxiety globally dairy based beverages high in phospholipids are proven to manage the effects of stress. WA has the skills and capabilities to deliver across the chain.

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?

\$4.50/40g bar (\$4-5/bar)
\$110/kg (\$90-135/kg)

WHAT SORT OF PACK SIZE?

40g bar, multipack

WHAT PRODUCT FORM?

bar

WHAT FORM OF PACKAGING?

Plastic wrap, cardboard box (multipack)

WHAT MARGINS WILL THE RETAILER TAKE?

35% (30-40%)
of retail selling price

WHAT SORT OF PROFITABILITY?

EBITDA \$0.45/unit (\$0.20-0.70/unit)
@10% of retail price (5-15%)

WHAT ARE THE KEY CHANNELS?

Supermarkets

✓✓✓

Pharmacy/Chemist

✓✓✓✓

Online

✓✓

Direct sales

-

Duty Free

-

Daigou

-

WHO IS THE COMPETITON?

Smaller, regional firms

WHAT ARE THE POTENTIAL INGREDIENTS?

Oats, superfoods, riberies, chia, phospholipids, vitamins & minerals (magnesium, 5-HTP)

WHAT COULD IT LOOK LIKE?



MILK PHOSPHOLIPID SNACK FOR STRESS AND ANXIETY RELIEF

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD	
Stress Anxiety		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO	SUPPLY CHAIN
	The Nutritionist Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Does or could grow in WA <div></div>
	The Doctor Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Strength in inputs <div></div>
WHAT DO THE EXPERTS SAY?		WHAT'S IN IT FOR WESTERN AUSTRALIA?					Capabilities across the chain <div></div>
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?		HOW CAN WA FARMERS PARTICIPATE?					Clear partners <div></div>
<ul style="list-style-type: none">Phospholipids are shown to impact cognitive performance and mood, by improving the endocrine response and improved working memory, during an imposed bout of stress.		<ul style="list-style-type: none">Keep producing milkProduce ingredients (fruit, oils etc.)					PRIMARY SECTOR
WHAT DOES THE NUTRITIONIST SAY?		HOW CAN WA SCIENTISTS PARTICIPATE?					Mechanically harvested <div></div>
A good balanced diet and exercise is good stress relief		<ul style="list-style-type: none">Research into extracting and isolating the relevant PhospholipidsAdditional clinical trials					High performance genetics available <div></div>
WHAT DOES THE DOCTOR SAY?		WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					Proven, scalable production model <div></div>
Stress and Anxiety is an increasing concern across all ages. More research is required into the role of Phospholipids on the endocrine system		WA grown ingredients Potential to develop IP controlled ingredients Trusted source/Safe supply					Required skills for success <div></div>
							PRODUCT CHARACTERISTICS
							Drought tolerant <div></div>
							Low input production <div></div>
							Wide range of uses <div></div>
							Full product utilisation <div></div>
							Indigenous knowledge <div></div>
							OVERALL <div></div>

Source: Company websites, articles, publications, reports; Coriolis research and analysis

RED ALGAE FOR EYE HEALTH

WHAT IS THE CONCEPT?	Astaxanthin from red algae to treat eye conditions			WHAT COULD IT LOOK LIKE?
GIVE ME THE ELEVATOR PITCH	Eye disease and macular degeneration is on the rise. Red algae, high in Astaxanthin can be used as an ingredient to protect eye health			
WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?		WHAT ARE THE KEY CHANNELS?		
WHAT SORT OF PRICING?	\$25/80 cap jar (\$20-30/jar) \$370/kg (\$300-450/kg)	Supermarkets	✓✓	
WHAT SORT OF PACK SIZE?	30, 60, 80, 100 caps	Pharmacy/Chemist	✓✓✓✓	
WHAT PRODUCT FORM?	Capsule	Online	✓✓	
WHAT FORM OF PACKAGING?	Plastic, tamper evident seal	Direct sales	✓✓	
WHAT MARGINS WILL THE RETAILER TAKE?	50% (45-55%) of retail selling price	Duty Free	-	
WHAT SORT OF PROFITABILITY?	EBITDA \$3.75/unit (\$2.50-5.00/unit) @15% of retail price (10-20%)	Daigou	-	
		WHO IS THE COMPETITON?		
		Proctor & Gamble Smaller, regional firms		
WHAT ARE THE POTENTIAL INGREDIENTS?	Haematococcus pluvialis (red algae)			





RED ALGAE FOR EYE HEALTH

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD	
Eye damage Age-related macular degeneration		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO	SUPPLY CHAIN
	The Nutritionist Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Does or could grow in WA <div></div>
	The Doctor Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Strength in inputs <div></div>
WHAT DO THE EXPERTS SAY?		WHAT'S IN IT FOR WESTERN AUSTRALIA?					Capabilities across the chain <div></div>
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?		HOW CAN WA FARMERS PARTICIPATE?					Clear partners <div></div>
<ul style="list-style-type: none">Astaxanthin is a carotenoid pigment, a powerful antioxidant that combats damage to eyes. Eyes have high concentrations of mitochondria and high turnover of photoreceptors and are damaged by free radicals		<ul style="list-style-type: none">Develop red alga industry to extract Astaxanthin					PRIMARY SECTOR
WHAT DOES THE NUTRITIONIST SAY?		HOW CAN WA SCIENTISTS PARTICIPATE?					Mechanically harvested <div></div>
Astaxanthin is found naturally in your diet from salmon, trout, lobster and prawns. Consumed naturally is always the best option.		<ul style="list-style-type: none">Research into growth and development of industryResearch into cost effective extraction processesResearch around benefits of Astaxanthin on eye health					High performance genetics available <div></div>
WHAT DOES THE DOCTOR SAY?		WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					Proven, scalable production model <div></div>
Eye health is a growing concern with increase damage from UV and screens. Additional research is needed on the impacts of Astaxanthin on eye health		WA grown ingredients Potential to develop IP controlled products Trusted source/Safe supply					Required skills for success <div></div>
							PRODUCT CHARACTERISTICS
							Drought tolerant <div></div>
							Low input production <div></div>
							Wide range of uses <div></div>
							Full product utilisation <div></div>
							Indigenous knowledge <div></div>
							OVERALL <div></div>

Source: Company websites, articles, publications, reports; Coriolis research and analysis

LOW RESISTANT CASSAVA STARCH FOR LOW CARB DIETS & WEIGHT LOSS

WHAT IS THE CONCEPT?	Cassava/Tapioca is an alternative starch/flour that can be used across the food industry as a healthier alternative			WHAT COULD IT LOOK LIKE?
GIVE ME THE ELEVATOR PITCH	Cassava/Tapioca is high in resistant starch is an alternative starch to corn or wheat that is free from gluten, grain and GMO's*, low in calories and carbs, and acts like a soluble fibre in your gut, suitable for keto, and paleo diets. It provides a clean label ingredient.			
WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?		WHAT ARE THE KEY CHANNELS?		
WHAT SORT OF PRICING?	\$20/900g (\$15-25/900g) \$22/kg (\$18-27/kg)	Supermarkets	✓✓	
WHAT SORT OF PACK SIZE?	500g, 900g	Foodservice	✓✓✓✓	
WHAT PRODUCT FORM?	Dry Powder/Flour	Online	✓✓	
WHAT FORM OF PACKAGING?	Plastic, tamper seal	Direct sales	-	
WHAT MARGINS WILL THE RETAILER TAKE?	35% (30-40%) of retail selling price	Duty Free	-	
WHAT SORT OF PROFITABILITY?	EBITDA \$2/unit (\$1-3/unit) @10% of retail price (5-15%)	Daigou	-	
		WHO IS THE COMPETITON?		
		National brands Manildra Smaller, regional firms		
WHAT ARE THE POTENTIAL INGREDIENTS?	Cassava			





*GMO's = Genetically Modified Organisms; Photo credit: fair use/fair dealing; low resolution; complete product/brand for illustrative purposes; transformative, criticism, comment, scholarship & research; Source: Company websites, articles, publications, reports; Coriolis research and analysis

LOW RESISTANT CASSAVA STARCH FOR LOW CARB DIETS & WEIGHT LOSS

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD	
Obesity Lowering cholesterol Healthier starch option “Dirty” labels		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO	SUPPLY CHAIN
	The Nutritionist Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Does or could grow in WA <div></div>
	The Doctor Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Strength in inputs <div></div>
WHAT DO THE EXPERTS SAY?		WHAT'S IN IT FOR WESTERN AUSTRALIA?					Capabilities across the chain <div></div>
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?		HOW CAN WA FARMERS PARTICIPATE?					Clear partners <div></div>
<ul style="list-style-type: none">Resistant starch functions like soluble fermentable fibre, feeding the intestinal gut bacteria and increases the production of short-chain fatty acids like butyrate - improving insulin sensitivity, lower blood sugar levels, reduced appetite and digestion benefits.		<ul style="list-style-type: none">Grow cassava for starch and flour					PRIMARY SECTOR
WHAT DOES THE NUTRITIONIST SAY?		HOW CAN WA SCIENTISTS PARTICIPATE?					Mechanically harvested <div></div>
Low resistant starch like cassava can be produced as a clean ingredient for many baked/cooked goods firms or used by individuals looking to lose weight.		<ul style="list-style-type: none">Develop methods of producing starch to retain functional benefits to replace E numbersR&D to develop a well researched cassava alternative					High performance genetics available <div></div>
WHAT DOES THE DOCTOR SAY?		WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					Proven, scalable production model <div></div>
Having fewer calories and regular starch, low resistant starch can be part of a wider package of options to help lose weight and provide a healthier ingredient		WA grown ingredients Potential to develop IP controlled products/ingredients Trusted source/Safe supply					Required skills for success <div></div>
							PRODUCT CHARACTERISTICS
							Drought tolerant <div></div>
							Low input production <div></div>
							Wide range of uses <div></div>
							Full product utilisation <div></div>
							Indigenous knowledge <div></div>
							OVERALL <div></div>

NUTRITIONALLY COMPLETE MEAL REPLACEMENT FOR WEIGHT LOSS

WHAT IS THE CONCEPT?	A nutritionally complete food source for adults		WHAT COULD IT LOOK LIKE?
GIVE ME THE ELEVATOR PITCH	Infant formula for fat people.		
WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?		WHAT ARE THE KEY CHANNELS?	
WHAT SORT OF PRICING?	\$50/6 414ml bottles (\$-/) \$20/l ((\$16-24/l))	Supermarkets	✓
WHAT SORT OF PACK SIZE?	2.5l (6x414ml in a six pack)	Pharmacy/Chemist	✓
WHAT PRODUCT FORM?	Shelf stable RTD beverage	Online	✓✓✓✓
WHAT FORM OF PACKAGING?	Plastic bottle; foil seal; six pack overwrap	Direct sales	✓✓
WHAT MARGINS WILL THE RETAILER TAKE?	40% (35-45%) of retail selling price	Duty Free	-
WHAT SORT OF PROFITABILITY?	EBITDA \$7.50/unit (\$5-10/6 pack) @15% of retail price	Daigou	-
		WHO IS THE COMPETITON?	
		Proctor & Gamble Smaller, regional firms	
WHAT ARE THE POTENTIAL INGREDIENTS?	<p>Filtered water, soy protein isolate, maltodextrin, high oleic sunflower oil, allulose, canola oil, cocoa powder (processed with alkali), natural flavors, vitamin and mineral premix, soluble corn fiber, soy lecithin, cellulose, salt, gellan gum, sucralose.strawberry: filtered water, soy protein isolate, maltodextrin, high oleic sunflower oil, allulose, canola oil, cellulose, vitamin and mineral premix, natural flavors, soluble corn fiber, soy lecithin, salt, gellan gum, sucralose.vanilla: filtered water, soy protein isolate, maltodextrin, high oleic sunflower oil, allulose, canola oil, cellulose, vitamin and mineral premix, natural flavors, soluble corn fiber, soy lecithin, salt, gellan gum, sucralose. banana: filtered water, soy protein isolate, maltodextrin, high oleic sunflower oil, allulose, canola oil, natural flavors, cellulose, vitamin and mineral premix, soluble corn fiber, soy lecithin, salt, gellan gum, sucralose. mint chocolate: filtered water, soy protein isolate, maltodextrin, high oleic sunflower oil, allulose, canola oil, cocoa powder (processed with alkali), natural flavors, vitamin and mineral premix, soluble corn fiber, soy lecithin, cellulose, salt, gellan gum, sucralose. cafe mocha: filtered water, soy protein isolate, maltodextrin, high oleic sunflower oil, natural flavors, allulose, canola oil, vitamin and mineral premix, coffee powder, cocoa powder (processed with alkali), cellulose, soluble corn fiber, soy lecithin, salt, gellan gum, l-theanine, sucralose. vitamin and mineral premix (ingredient order may vary by flavor): magnesium phosphate (magnesium), tricalcium phosphate (calcium), dipotassium phosphate (potassium), ascorbic acid (vitamin c), potassium chloride (potassium), choline chloride (choline), dl-alpha-tocopheryl acetate (vitamin e), niacinamide (niacin), ferrous bisglycinate (iron), zinc oxide (zinc), manganese sulfate (manganese), d-calcium pantothenate (pantothenic acid), copper gluconate (copper), thiamine hydrochloride (thiamine), pyridoxine hydrochloride (vitamin b6), riboflavin, vitamin a palmitate (vitamin a), potassium iodide (iodine), folic acid, chromium chloride (chromium), vitamin k1, sodium selenite (selenium), sodium molybdate (molybdenum), biotin, ergocalciferol (vitamin d2), cyanocobalamin (vitamin b12)</p>		





NUTRITIONALLY COMPLETE MEAL REPLACEMENT FOR WEIGHT LOSS

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD	
Obesity		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO	SUPPLY CHAIN
	The Nutritionist Says	●	○	○	○	○	Does or could grow in WA ○
	The Doctor Says	○	●	○	○	○	Strength in inputs ●
WHAT DO THE EXPERTS SAY?		WHAT'S IN IT FOR WESTERN AUSTRALIA?					Capabilities across the chain ○
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?		HOW CAN WA FARMERS PARTICIPATE?					Clear partners ○
• Weight loss through diet restriction		• Growing canola • Growing a wide range of other ingredients					PRIMARY SECTOR
WHAT DOES THE NUTRITIONIST SAY?		HOW CAN WA SCIENTISTS PARTICIPATE?					Mechanically harvested ●
It will clearly work if you can get the consumer to stay on the plan and not "cheat"		• Improving formulations • Tailoring formulations for specific conditions					High performance genetics available ○
WHAT DOES THE DOCTOR SAY?		WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					Proven, scalable production model ●
Restricting diet to achieve weight loss sounds good in theory. In practice, compliance is the challenge.		WA grown ingredients Trusted source/Safe supply					Required skills for success ●
							PRODUCT CHARACTERISTICS
							Drought tolerant ○
							Low input production ○
							Wide range of uses ●
							Full product utilisation ●
							Indigenous knowledge ○
							OVERALL ○

Source: Company websites, articles, publications, reports; Coriolis research and analysis

HEMP OIL TO REDUCE SYMPTOMS OF PMS & MENOPAUSE

WHAT IS THE CONCEPT?	Hemp oil may reduce the symptoms of PMS and Menopause			WHAT COULD IT LOOK LIKE?
GIVE ME THE ELEVATOR PITCH	Globally 80% women suffer from symptoms of PMS and Menopause, gamma-linolenic acid (GLA), found in hemp seeds many reduce these symptoms. WA has the science and agronomy to develop a hemp oil industry			
WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?		WHAT ARE THE KEY CHANNELS?		
WHAT SORT OF PRICING?	\$25/80 cap jar (\$20-30/jar) \$370/kg (\$300-450/kg)	Supermarkets	✓✓	
WHAT SORT OF PACK SIZE?	60, 80, 110 caps	Pharmacy/Chemist	✓✓✓✓	
WHAT PRODUCT FORM?	Capsule	Online	✓✓	
WHAT FORM OF PACKAGING?	Plastic, tamper evident seal	Direct sales	-	
WHAT MARGINS WILL THE RETAILER TAKE?	50% (45-55%) of retail selling price	Duty Free	-	
WHAT SORT OF PROFITABILITY?	EBITDA \$3.75/unit (\$2.50-5.00/unit) @15% of retail price (10-20%)	Daigou	-	
		WHO IS THE COMPETITON?		
		National & Regional firms		
WHAT ARE THE POTENTIAL INGREDIENTS?	Hemp oil, Evening Primrose oil			




HEMP OIL TO REDUCE SYMPTOMS OF PMS* & MENOPAUSE

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD
PMS Menopause symptoms		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO
	The Nutritionist Says	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
	The Doctor Says	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					SUPPLY CHAIN
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?					Does or could grow in WA <input checked="" type="radio"/>
<ul style="list-style-type: none"> PMS symptoms are very likely caused by sensitivity to the hormone prolactin. Gamma-linolenic acid (GLA), found in hemp seeds, produces prostaglandin E1, which reduces the effects of prolactin. GLA in hemp seeds may regulate the hormone imbalances and inflammation associated with menopause 	<ul style="list-style-type: none"> Grow hemp for use in food products (seed in particular) 					Strength in inputs <input type="radio"/>
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					Capabilities across the chain <input type="radio"/>
All healthy oils are good for the body. Hemp oils combination of oils make them attractive from a dietary point of view.	<ul style="list-style-type: none"> Ongoing research into targeted benefits of hemp and hemp products Research into effective dosages targeting PMS NPD for new and novel hemp products 					Clear partners <input type="radio"/>
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					PRIMARY SECTOR
While some studies in animals show an impact on symptoms of menopause additional human studies are required to substantiate claims of the effects of GLA. PMS studies are more hopeful.	<p>WA grown ingredients</p> <p>Potential to develop IP controlled hemp varieties</p> <p>Trusted source/Safe supply</p>					Mechanically harvested <input checked="" type="radio"/>
						High performance genetics available <input type="radio"/>
						Proven, scalable production model <input checked="" type="radio"/>
						Required skills for success <input checked="" type="radio"/>
						PRODUCT CHARACTERISTICS
						Drought tolerant <input type="radio"/>
						Low input production <input type="radio"/>
						Wide range of uses <input type="radio"/>
						Full product utilisation <input checked="" type="radio"/>
						Indigenous knowledge <input type="radio"/>
						OVERALL <input checked="" type="radio"/>

* PMS = Premenstrual Syndrome; Source: Company websites, articles, publications, reports; Coriolis research and analysis

HEMP OIL FOR A HEALTHY HEART

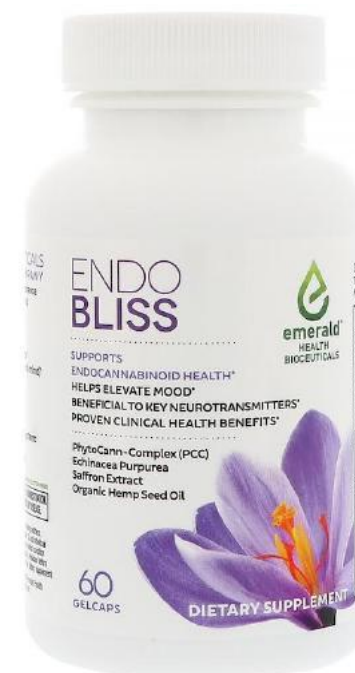
WHAT IS THE CONCEPT?	Healthy fats for a healthy heart		WHAT COULD IT LOOK LIKE?
GIVE ME THE ELEVATOR PITCH	CVD is a global killer, hemp seeds are high in healthy fats omega-3 and omega-6 both known for improving heart health by reducing cholesterol, blood pressure and triglycerides.		
WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?		WHAT ARE THE KEY CHANNELS?	
WHAT SORT OF PRICING?	\$7.50/250ml (\$5-10/250ml) \$75/l (\$100-150/l)	Supermarkets	✓✓✓✓
WHAT SORT OF PACK SIZE?	100ml, 250ml, 500ml	Pharmacy/Chemist	✓✓✓
WHAT PRODUCT FORM?	Oil	Online	✓✓✓
WHAT FORM OF PACKAGING?	Glass bottle, sealed cap/lid	Direct sales	✓✓✓
WHAT MARGINS WILL THE RETAILER TAKE?	35% (30-40%) of retail selling price	Duty Free	-
WHAT SORT OF PROFITABILITY?	EBITDA \$0.75/unit (\$0.40-1.10/unit) @10% of retail price (5-15%)	Daigou	-
WHAT ARE THE POTENTIAL INGREDIENTS?		WHO IS THE COMPETITON?	
		MNC's, National and regional firms	
			

HEMP OIL FOR A HEALTHY HEART

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD
CVD		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO
	The Nutritionist Says	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	The Doctor Says	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					SUPPLY CHAIN
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?					Does or could grow in WA
<ul style="list-style-type: none"> Hemp seeds contain high levels of omega-3s and a healthful ratio of omega-3 to omega-6 fatty acids. Seeds also contain high levels of arginine, an amino acid that turns into nitric oxide. Nitric oxide is essential for artery and vein dilation, and it helps keep blood vessel walls smooth and elastic. 	<ul style="list-style-type: none"> Grow hemp for use in food products (seed in particular) 					Strength in inputs
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					Capabilities across the chain
Hemp and hemp products have been used for 3,000 years in China. Healthy oils are a good inclusion in your diet from hemp oil or flax oils or fish.	<ul style="list-style-type: none"> Ongoing research into targeted benefits of hemp and hemp products Research into effective dosages targeting conditions NPD for new and novel hemp products 					Clear partners
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					PRIMARY SECTOR
More clinical studies are required to measure the impact of hemp oils (from seeds) on reduced risk of cardiovascular disease.	<p>WA grown ingredients</p> <p>Potential to develop IP controlled hemp varieties</p> <p>Trusted source/Safe supply</p>					Mechanically harvested
						High performance genetics available
						Proven, scalable production model
						Required skills for success
						PRODUCT CHARACTERISTICS
						Drought tolerant
						Low input production
						Wide range of uses
						Full product utilisation
						Indigenous knowledge
						OVERALL

SAFFRON, HEMPSEED OIL & OTHER BOTANICALS FOR MOOD

WHAT IS THE CONCEPT?	Mixture of botanical ingredients to support the endocannabinoid system		WHAT COULD IT LOOK LIKE?
GIVE ME THE ELEVATOR PITCH	“Naturally support a positive outlook and resistance to daily pressures by nurturing and nourishing your endocannabinoid system”		
WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?		WHAT ARE THE KEY CHANNELS?	
WHAT SORT OF PRICING?	\$40/60 cap (\$30-50/60 cap) \$800/kg (\$600-1,000/kg)	Supermarkets	✓✓
WHAT SORT OF PACK SIZE?	60 cap, 80 cap	Pharmacy/Chemist	✓✓✓✓
WHAT PRODUCT FORM?	capsule	Online	✓✓
WHAT FORM OF PACKAGING?	plastic jar; tamper seal lid	Direct sales	-
WHAT MARGINS WILL THE RETAILER TAKE?	50% (45-55%) of retail selling price	Duty Free	-
WHAT SORT OF PROFITABILITY?	EBITDA \$6/jar (\$4-8/jar) @15% of retail price (10-20%)	Daigou	-
		WHO IS THE COMPETITON?	
		St. John's Wort Other mood support supplements	
WHAT ARE THE POTENTIAL INGREDIENTS?	Saffron Powder Extract (Crocus sativus), Hempseed Oil, Ginger Root Powder, Paeonia Root Powder, Clove Flower Bud Oil, Zanthoxylum Fruit Extract, Echinacea Powder Extract, Magnolia Bark Powder Extract		



SAFFRON, HEMPSEED OIL & OTHER BOTANICALS FOR MOOD

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD
Mild depression, ennui, modern life		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO
	The Nutritionist Says	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
	The Doctor Says	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					SUPPLY CHAIN
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?					Does or could grow in WA <input checked="" type="radio"/>
<ul style="list-style-type: none"> The endocannabinoid system is intricately involved in balancing neurotransmitters that influence mood and brain function. "Supporting" the function of this system will support a positive mood 	<ul style="list-style-type: none"> Growing saffron (<i>Crocus sativus</i>) Growing hemp for hempseed oil Growing other botanicals for use in supplements 					Strength in inputs <input checked="" type="radio"/>
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					Capabilities across the chain <input checked="" type="radio"/>
Evidence for this is limited at best.	<ul style="list-style-type: none"> Further research into the endocannabinoid system Further research on plants beyond hemp that impact its function 					Clear partners <input type="radio"/>
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					PRIMARY SECTOR
If you are suffering from regular depression, you should see your doctor.	WA grown ingredients Trusted source/Safe supply					Mechanically harvested <input checked="" type="radio"/>
						High performance genetics available <input checked="" type="radio"/>
						Proven, scalable production model <input type="radio"/>
						Required skills for success <input checked="" type="radio"/>
						PRODUCT CHARACTERISTICS
						Drought tolerant <input checked="" type="radio"/>
						Low input production <input type="radio"/>
						Wide range of uses <input checked="" type="radio"/>
						Full product utilisation <input type="radio"/>
						Indigenous knowledge <input type="radio"/>
						OVERALL <input type="radio"/>

MUSHROOM FOCUS SHOT FOR ANXIETY & DEPRESSION

WHAT IS THE CONCEPT?

Medicinal mushrooms and other herbal extracts in a RTD* shot form

GIVE ME THE ELEVATOR PITCH

"Twist, Sip, Focus! Brain on point"
A generalised brain health shot in a ready-to-drink bottle with positive effects on anxiety and mood

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?

\$54/444ml (\$-/)
\$120/l (\$100-150/l)

WHAT SORT OF PACK SIZE?

74ml, 444ml (6 x 74ml)

WHAT PRODUCT FORM?

"Tea"-like mixture

WHAT FORM OF PACKAGING?

Shelf stable plastic bottle; plastic tamper evident seal; pack overwrap

WHAT MARGINS WILL THE RETAILER TAKE?

40% (35%-45%)
of retail selling price

WHAT SORT OF PROFITABILITY?

EBITDA \$8.10/6pk (\$5-11/6pk)
@15% of retail price (10-20%)

WHAT ARE THE KEY CHANNELS?

Supermarkets

✓✓✓✓

Pharmacy/Chemist

✓✓

Online

✓✓

Direct sales

✓✓

Duty Free

-

Daigou

-

WHO IS THE COMPETITON?

Coffee Imports
Smaller, regional firms
Anti-depressants

WHAT ARE THE POTENTIAL INGREDIENTS?

Lion's Mane Mushroom extract, Guayusa extract, Rhodiola extract, Rosehip extract, Pineapple extract, lime extract, Stevia extract, B12, Himalayan salt, water.

WHAT COULD IT LOOK LIKE?



* RTD – Ready to Drink; Photo credit: fair use/fair dealing; low resolution; complete product/brand for illustrative purposes; transformative, criticism, comment, scholarship & research; Source: Company websites, articles, publications, reports; Coriolis research and analysis

MUSHROOM FOCUS SHOT FOR ANXIETY & DEPRESSION

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD
Generalised brain health Alertness Depression and anxiety		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO
	The Nutritionist Says	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	The Doctor Says	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					SUPPLY CHAIN
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?					Does or could grow in WA <input type="radio"/>
<ul style="list-style-type: none"> Animal research has found that lion's mane mushroom extract has anti-inflammatory effects that can reduce symptoms of anxiety and depression in mice Other animal studies have found that it can help regenerate brain cells and improve hippocampus function, responsible for processing memories and emotional responses; improved functioning of the hippocampus may explain the reductions in anxious and depressive behaviors 	<ul style="list-style-type: none"> The production of specialty mushrooms (including Lion's Mane) in the USA increased by about 23% between 2010 and 2018 from 7 to 9 million kg Growing Lion's Mane (<i>Hericium erinaceus</i>) mushrooms Growing Guayusa in Far North 					Strength in inputs <input checked="" type="radio"/>
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					Capabilities across the chain <input checked="" type="radio"/>
Lion's Mane has a long history of use in Traditional Chinese medicine.	<ul style="list-style-type: none"> Better understanding of the active ingredient(s) Better understanding of mechanism of action Clinical trials to demonstrate effects 					Clear partners <input type="radio"/>
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					PRIMARY SECTOR
More research is needed before I'd recommend this to anyone with clinical depression. As a substitute for caffeine, it is probably fine given the long history of use in China.	WA grown ingredients Potential to develop IP controlled mushroom genetics Trusted source/Safe supply					Mechanically harvested <input type="radio"/>
						High performance genetics available <input type="radio"/>
						Proven, scalable production model <input checked="" type="radio"/>
						Required skills for success <input checked="" type="radio"/>
						PRODUCT CHARACTERISTICS
						Drought tolerant <input type="radio"/>
						Low input production <input type="radio"/>
						Wide range of uses <input type="radio"/>
						Full product utilisation <input checked="" type="radio"/>
						Indigenous knowledge <input type="radio"/>
						OVERALL <input type="radio"/>

MUSHROOM COFFEE FOR BRAIN HEALTH

WHAT IS THE CONCEPT?

Medicinal mushrooms and other herbal extracts added to coffee

GIVE ME THE ELEVATOR PITCH

Increase your productivity with mushroom infused coffee for extra focus. "Lion's Mane is your brain's best friend. Long used by the Buddhist monks to help with focus during meditation, this beautiful mushroom is our modern-day favorite for getting creative."

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?

\$30/25g (\$-/)
\$1,200/kg (\$960-1,440/kg)

WHAT SORT OF PACK SIZE?

25g (10 packets x 2.5g/pack)

WHAT PRODUCT FORM?

Instant coffee

WHAT FORM OF PACKAGING?

Lined paper pouch; plastic tamper evident seal; cardboard box

WHAT MARGINS WILL THE RETAILER TAKE?

35% (30-40%)
of retail selling price

WHAT SORT OF PROFITABILITY?

EBITDA \$3.00/box (\$1.50-4.50/box)
@10% of retail price

WHAT ARE THE KEY CHANNELS?

Supermarkets

✓✓✓✓

Pharmacy/Chemist

✓✓

Online

✓✓

Direct sales

✓✓✓

Duty Free

-

Daigou

-

WHO IS THE COMPETITION?

Regular coffee from supermarkets
Regular coffee from a café

WHAT ARE THE POTENTIAL INGREDIENTS?

Organic Instant Coffee, Organic Lion's Mane Mushroom, Organic Chaga Mushroom, Organic Rhodiola

WHAT COULD IT LOOK LIKE?





MUSHROOM COFFEE FOR BRAIN HEALTH

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD
Generalised brain health Alertness Depression and anxiety		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO
	The Nutritionist Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>
	The Doctor Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?					
<ul style="list-style-type: none">Animal research has found that lion's mane mushroom extract has anti-inflammatory effects that can reduce symptoms of anxiety and depression in miceOther animal studies have found that it can help regenerate brain cells and improve hippocampus function, responsible for processing memories and emotional responses; improved functioning of the hippocampus may explain the reductions in anxious and depressive behaviors	<ul style="list-style-type: none">The production of specialty mushrooms (including Lion's Mane) in the USA increased by about 23% between 2010 and 2018 from 7 to 9 million kgGrowing Lion's Mane (<i>Hericium erinaceus</i>) or Chaga (<i>Inonotus obliquus</i>) mushroomsPotentially growing coffee in the far North (modest success ongoing in Northern Queensland)					
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					
<i>Lion's Mane has a long history of use in Traditional Chinese medicine.</i>	<ul style="list-style-type: none">Better understanding of the active ingredient(s)Better understanding of mechanism of actionClinical trials to demonstrate effects					
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					
<i>As a substitute for caffeine, it is probably fine given the long history of use in China.</i>	WA grown ingredients Potential to develop IP controlled mushroom genetics Trusted source/Safe supply					
SCORECARD						
SUPPLY CHAIN						
Does or could grow in WA					<div></div>	
Strength in inputs					<div></div>	
Capabilities across the chain					<div></div>	
Clear partners					<div></div>	
PRIMARY SECTOR						
Mechanically harvested					<div></div>	
High performance genetics available					<div></div>	
Proven, scalable production model					<div></div>	
Required skills for success					<div></div>	
PRODUCT CHARACTERISTICS						
Drought tolerant					<div></div>	
Low input production					<div></div>	
Wide range of uses					<div></div>	
Full product utilisation					<div></div>	
Indigenous knowledge					<div></div>	
OVERALL					<div></div>	

Source: Company websites, articles, publications, reports; Coriolis research and analysis

BACOPA MONNIERI AND OTHER PLANTS FOR BRAIN HEALTH

WHAT IS THE CONCEPT?	Water hyssop/brahmi (Bacopa monnieri) and other active ingredients in a supplement targeting brain function and health		
GIVE ME THE ELEVATOR PITCH	Brain health and deteriorating brain function with age are major issues. Bacopa monnieri is a perennial herb widely used in Ayurvedic medicine in India. While a number of wild claims are made for its effects, preliminary clinical research found that it may improve cognition.		
WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?		WHAT ARE THE KEY CHANNELS?	
WHAT SORT OF PRICING?	\$90/50 caps (\$70-100/50ct) \$2,200/kg (\$1,700-2,600/kg)	Supermarkets	✓
WHAT SORT OF PACK SIZE?	40-50g	Pharmacy/Chemist	✓✓✓✓
WHAT PRODUCT FORM?	Capsules	Online	✓✓✓✓
WHAT FORM OF PACKAGING?	Plastic bottle with tamper evident foil seal	Direct sales	-
WHAT MARGINS WILL THE RETAILER TAKE?	50% of retail selling price	Duty Free	-
WHAT SORT OF PROFITABILITY?	EBITDA \$13.50/jar (\$9-18/jar) @% of retail price	Daigou	-
		WHO IS THE COMPETITON?	
		Imports Smaller, regional firms	
WHAT ARE THE POTENTIAL INGREDIENTS?	Bacopa Monnieri, Rhodiola Rosea Extract, L-Theanine, Caffeine, Alpha GPC*, Huperzine A, Co-enzyme NADH^, Vitamin B3, Vitamin B12, Vitamin B5, BioPerine (Piper Nigrum)		



* GPC = Glycerylphosphorylcholine; [^]NADH = nicotinamide adenine dinucleotide hydride; Photo credit: fair use/fair dealing; low resolution; complete product/brand for illustrative purposes; transformative, criticism, comment, scholarship & research; Source: Company websites, articles, publications, reports; Coriolis research and analysis

BACOPA MONNIERI AND OTHER PLANTS FOR BRAIN HEALTH

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD
General brain health Memory Stress Mood		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO
	The Nutritionist Says	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
	The Doctor Says	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					SUPPLY CHAIN
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?					Does or could grow in WA
“Current evidence suggests BM acts via the following mechanisms—anti-oxidant neuroprotection, acetylcholinesterase inhibition and/or choline acetyltransferase activation, β -amyloid reduction, increased cerebral blood flow, and neurotransmitter modulation.”	<ul style="list-style-type: none"> Growing Bacopa Monnieri Growing other nootropic (cognition enhancing) plants (e.g. golden root (Rhodiola Rosea)) 					Strength in inputs
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					Capabilities across the chain
<i>There are a wide range of plants with modes indications of some effect on the brain. Proving that this does anything is the challenge.</i>	<ul style="list-style-type: none"> Better understanding of the active ingredient(s) Better understanding of mechanism of action Clinical trials to demonstrate effects 					Clear partners
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					PRIMARY SECTOR
<i>If it works for someone, great. Placebo +1? There is not a lot the medical profession can do for generalised slowing brain function.</i>	Potential to develop IP controlled genetics Trusted source/Safe supply					Mechanically harvested
						High performance genetics available
						Proven, scalable production model
						Required skills for success
						PRODUCT CHARACTERISTICS
						Drought tolerant
						Low input production
						Wide range of uses
						Full product utilisation
						Indigenous knowledge
						OVERALL

ANTIBACTERIAL LOZENGE FROM JARRAH HONEY

WHAT IS THE CONCEPT?

Jarraah honey is a high activity honey, natural antibacterial and antifungal; in the lozenge form it can soothe sore throats

GIVE ME THE ELEVATOR PITCH

Honey has a strong position as antibacterial and being good for colds; while manuka honey is the leader in this space, WA can use it's locally sourced Jarraah with high hydrogen peroxide levels and high antioxidants to develop a strong honey industry

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?

WHAT SORT OF PRICING?	\$20/40ct. 180g (\$16-24/180g) \$110/kg (\$90-130/kg)
WHAT SORT OF PACK SIZE?	20 pack, 40 pack
WHAT PRODUCT FORM?	Lozenge
WHAT FORM OF PACKAGING?	Sealed pack, individually wrapped, foil blister or loose bag
WHAT MARGINS WILL THE RETAILER TAKE?	45% (40-50%) of retail selling price
WHAT SORT OF PROFITABILITY?	EBITDA \$2.40/unit (\$1.40-3.40/unit) @12% of retail price (7-17%)

WHAT ARE THE KEY CHANNELS?

Supermarkets	✓✓✓✓
Pharmacy/Chemist	✓✓✓✓
Online	✓✓✓✓
Direct sales	✓✓
Duty Free	✓✓
Daigou	✓✓

WHO IS THE COMPETITON?

New Zealand firms
National Australian firms
Regional Australian firms

WHAT ARE THE POTENTIAL INGREDIENTS?

Honey, maltodextrin, (flavours – lemon, kakadu plum, ginger)

WHAT COULD IT LOOK LIKE?



ANTIBACTERIAL LOZENGE FROM JARRAH HONEY

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD
Symptoms of cold Sore throats Mouth ulcers		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO
	The Nutritionist Says	●	○	○	○	○
	The Doctor Says	○	●	○	○	○
WHAT DO THE EXPERTS SAY?	WHAT'S IN IT FOR WESTERN AUSTRALIA?					SUPPLY CHAIN
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?	HOW CAN WA FARMERS PARTICIPATE?					Does or could grow in WA
<ul style="list-style-type: none"> Jarrah honey has a high hydrogen peroxide level which can inhibit the growth of bacteria and fungus. 	<ul style="list-style-type: none"> Maintain privately held Jarrah stands – support bee keepers 					Strength in inputs
WHAT DOES THE NUTRITIONIST SAY?	HOW CAN WA SCIENTISTS PARTICIPATE?					Capabilities across the chain
Jarrah honey is increasingly researched for its medicinal properties and high antimicrobial activity. Honey is a known antibacterial that is good for your throat when you have a cold.	<ul style="list-style-type: none"> Ongoing studies into medicinal benefits of jarrah honey Developing testing criteria New product development for medicinal products and applications Ensure traceability of products 					Clear partners
WHAT DOES THE DOCTOR SAY?	WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					PRIMARY SECTOR
Jarrah has the potential to be an important antibacterial for the mouth, throat and skin.	WA unique product Trusted source/Safe supply					Mechanically harvested
						High performance genetics available
						Proven, scalable production model
						Required skills for success
						PRODUCT CHARACTERISTICS
						Drought tolerant
						Low input production
						Wide range of uses
						Full product utilisation
						Indigenous knowledge
						OVERALL

LOW GI JARRAH HONEY

WHAT IS THE CONCEPT?	Jarrah honey is a high activity honey, natural antimicrobial with Low GI and Glucose therefore suitable for diabetics
GIVE ME THE ELEVATOR PITCH	Honey has a strong position as antibacterial, but Jarrah honey also has low GI to reduce the insulin response in the body and improve blood cholesterol levels. Jarrah honey can be a alternative sweetener for diabetics

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?		WHAT ARE THE KEY CHANNELS?	
WHAT SORT OF PRICING?	\$40/250g (\$30-50/250g) \$160/kg (\$130-190/kg)	Supermarkets	✓✓✓✓
WHAT SORT OF PACK SIZE?	250g, 500g	Pharmacy/Chemist	✓✓✓✓
WHAT PRODUCT FORM?	Liquid honey	Online	✓✓✓✓
WHAT FORM OF PACKAGING?	sealed plastic, glass container or individual servings	Direct sales	✓✓
WHAT MARGINS WILL THE RETAILER TAKE?	35% (30-40%) of retail selling price	Duty Free	✓✓
WHAT SORT OF PROFITABILITY?	EBITDA \$4/unit (\$2-6/unit) @10% of retail price (5-15%)	Daigou	✓✓
		WHO IS THE COMPETITON?	
		National firms Regional firms	

WHAT ARE THE POTENTIAL INGREDIENTS?	Honey
-------------------------------------	-------

WHAT COULD IT LOOK LIKE?

The image displays two product packaging designs for Karibee Jarrah honey. The top packaging is a box for '15 Premium Honey Sachets' of 'Jarrah Raw Honey Sachets', labeled as 'PRODUCE OF WESTERN AUSTRALIAN' and 'TA35'. It features a stylized sunburst logo with a bee. Below the box are three individual sachets. The bottom packaging is a dark jar of 'JARRAH NATURAL HONEY ANTIOXIDANT', labeled as 'PRODUCT OF WESTERN AUSTRALIA 500g' and 'TA30+'. It features a logo with a drop and the letters 'jh', and a 'LOW GI CERTIFIED' seal.

LOW GI JARRAH HONEY

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD	
Diets requiring Low (Glycaemic Index) foods Diabetes		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO	SUPPLY CHAIN
	The Nutritionist Says	●	○	○	○	○	Does or could grow in WA ●
	The Doctor Says	○	●	○	○	○	Strength in inputs ●
WHAT DO THE EXPERTS SAY?		WHAT'S IN IT FOR WESTERN AUSTRALIA?					Capabilities across the chain ●
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?		HOW CAN WA FARMERS PARTICIPATE?					Clear partners ●
<ul style="list-style-type: none">High levels of fructose (52%) gives jarrah a lower GI than other honeys.Low glycaemic foods are known to reduce insulin response in the body and to improve blood cholesterol levels.		<ul style="list-style-type: none">Maintain privately held Jarrah stands – support bee keepers					PRIMARY SECTOR
WHAT DOES THE NUTRITIONIST SAY?		HOW CAN WA SCIENTISTS PARTICIPATE?					Mechanically harvested ○
Jarrah honey is increasingly researched for its medicinal properties and high antimicrobial activity. Honey is a known antibacterial that is good for your throat when you have a cold.		<ul style="list-style-type: none">Ongoing studies into medicinal benefits of jarrah honeyDeveloping testing criteriaNew product development for medicinal products and applicationsEnsure traceability of products					High performance genetics available ●
WHAT DOES THE DOCTOR SAY?		WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					Proven, scalable production model ○
Jarrah honey is a low GI alternative honey, other sweeteners have lower fructose		WA unique product Trusted source/Safe supply					Required skills for success ○
							PRODUCT CHARACTERISTICS
							Drought tolerant ○
							Low input production ●
							Wide range of uses ●
							Full product utilisation ●
							Indigenous knowledge ●
							OVERALL ●


DOCTOR/IN-STORE NUTRITIONIST PROVIDING “FOOD AS MEDICINE” PRESCRIPTION

WHAT IS THE CONCEPT?	Doctor prescribes specialised diet/nutritional requirements which are fulfilled in select supermarkets with support of in-store nutritionist
GIVE ME THE ELEVATOR PITCH	Obesity and diabetes are often based on a poor diet. A supermarket on the program fulfills the nutritional prescription and provides dietary advice for patients. An associated “app” provides further information to patients (e.g. nutritional values of foods, health attributes etc.)

WHAT MIGHT THE PRODUCT METRICS LOOK LIKE?		WHAT ARE THE KEY CHANNELS?	
WHAT SORT OF PRICING?	variable	Supermarkets	✓✓✓✓
WHAT SORT OF PACK SIZE?	variable, as required	Pharmacy/Chemist	-
WHAT PRODUCT FORM?	whole fresh, frozen, ready-meal	Online	-
WHAT FORM OF PACKAGING?	variable	Direct sales	-
WHAT MARGINS WILL THE RETAILER TAKE?	n/a	Duty Free	-
WHAT SORT OF PROFITABILITY?	n/a	Daigou	-
		WHO IS THE COMPETITON?	
		Supermarket chains	


WHAT ARE THE POTENTIAL INGREDIENTS?	Full range of fruit, vegetables, meats, seafoods, nuts, oils, nutraceuticals and ready-meals
-------------------------------------	--

WHAT COULD IT LOOK LIKE?




Simplify Your Journey to Better Health with Wellness Your Way Connect!


Keeping good health in mind is an important part of your shopping experience. Wellness Your Way Connect pairs the nutrition history of your Shopper's Card with your Pharmacy information, allowing our food experts and healthcare providers to bring you personalized services, nutrition information, recipes and more – all tailored to your health needs.¹



Exclusive Savings
Get PERSONALIZED SAVINGS AND COUPONS that make better for you foods even more affordable.




Personalized Advice
Our experts have your health in mind with exclusive TIPS & INFORMATION.





Dietitian's Pick Recipes
NUTRITION INFORMATION & RECIPES bring it all together for you.

Enrolling in Wellness Your Way Connect is easy...and FREE! If you already use My Prescriptions, simply sign in below to enroll. If not, sign up to use My Prescriptions to get started. Here's how:



Already use My Prescriptions?

1. Sign in to your digital account.
2. Opt in to connect your Shopper's Card to your Pharmacy information.³
3. Your enrollment is complete!⁴

DOCTOR/IN-STORE NUTRITIONIST PROVIDING “FOOD AS MEDICINE” PRESCRIPTION

WHAT IS IT TREATING?	HOW CLEAR IS THE SCIENCE OR EVIDENCE?					SCORECARD	
Diabetes		SOLID	PROBABLE	MAYBE	MODEST	LOW/NO	SUPPLY CHAIN
	The Nutritionist Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Does or could grow in WA <div></div>
	The Doctor Says	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Strength in inputs <div></div>
WHAT DO THE EXPERTS SAY?		WHAT'S IN IT FOR WESTERN AUSTRALIA?					Capabilities across the chain <div></div>
WHAT IS THE LIKELY/POTENTIAL MECHANISM OF ACTION?		HOW CAN WA FARMERS PARTICIPATE?					Clear partners <div></div>
<ul style="list-style-type: none">Healthy nutritional diet assist in diabetes		<ul style="list-style-type: none">Growing fruit, vegetables and meats for specific stores					PRIMARY SECTOR
WHAT DOES THE NUTRITIONIST SAY?		HOW CAN WA SCIENTISTS PARTICIPATE?					Mechanically harvested <div></div>
Any approach that makes eating a healthy diet easy and accessible is as good thing		<ul style="list-style-type: none">R&D into specific meals and food combinations that are condition specific and targeted					High performance genetics available <div></div>
WHAT DOES THE DOCTOR SAY?		WHAT IS THE LEVERAGE OR POINT-OF-DIFFERENCE FOR WA?					Proven, scalable production model <div></div>
Diet is very important in obesity related issues such as diabetes and many other disease (high cholesterol, heart disease). A healthy diet is very important in treating and preventing disease		WA grown ingredients Trusted source/Safe supply					Required skills for success <div></div>
							PRODUCT CHARACTERISTICS
							Drought tolerant <div></div>
							Low input production <div></div>
							Wide range of uses <div></div>
							Full product utilisation <div></div>
							Indigenous knowledge <div></div>
							OVERALL <div></div>

TABLE OF CONTENTS

page 7	page 17	page 54	page 75	page 105	page 133
<i>Context, Markets and Process</i>	<i>Conditions, Concepts and Challenges</i>	<i>Health Focused Dairy/Alternative Dairy</i>	<i>Oat Extracts</i>	<i>Plant Proteins</i>	<i>Medical/Health Focused Ready Meals</i>
page 161	page 205	page 233	page 262	page 337	
<i>Botanical Waste Streams</i>	<i>Meat Extracts</i>	<i>Bushcrop Extracts</i>	<i>Other Opportunities</i>	<i>Appendix I Markets & Conditions Details</i>	

MARKETS SUMMARY: Western Australia has an attractive set of markets available to target with foods for health products

This project is focused on the domestic Australian market and attractive markets in Asia; market that:

- Are close to Western Australia and/or
- Are traditional trading partners and/or
- Have wealth available to spend on healthcare
- Have significant healthcare needs

The USA, Australia, Japan and Hong Kong stand out as the most attractive markets for Western Australian Foods for Health

Analysis comparing both GDP/capita and spending on healthcare provides a short list of 18 markets with money to spend on imported Foods for Health from WA

- Australia, China, Hong Kong, Indonesia, Israel, Japan, Kuwait, Malaysia, New Zealand, Philippines, Saudi Arabia, Singapore, South Korea, Taiwan, Thailand, UAE, USA, Vietnam

While all short list markets have both money to spend and healthcare needs, they vary in numerous ways:

MARKET SIZE: Markets vary in terms of both how many people and how much money they have

- Larger populations with more money should be targeted first

HEALTHCARE NEEDS: General indicators of health vary by market, with some having more old people and/or more obese people than others

- Populations with more signs of an unhealthy population should be targeted first

HEALTHCARE RESOURCES: Different markets have different levels of healthcare resources available; some have significantly more doctors, hospital beds and pharmacists than others

- Markets with more healthcare resources will likely have more opportunities to recommend foods for health to patients

HEALTH SPENDING: Markets vary in terms of the amount they spend on healthcare, both overall and per person

- This indicates or implies their ability to buy WA foods for health

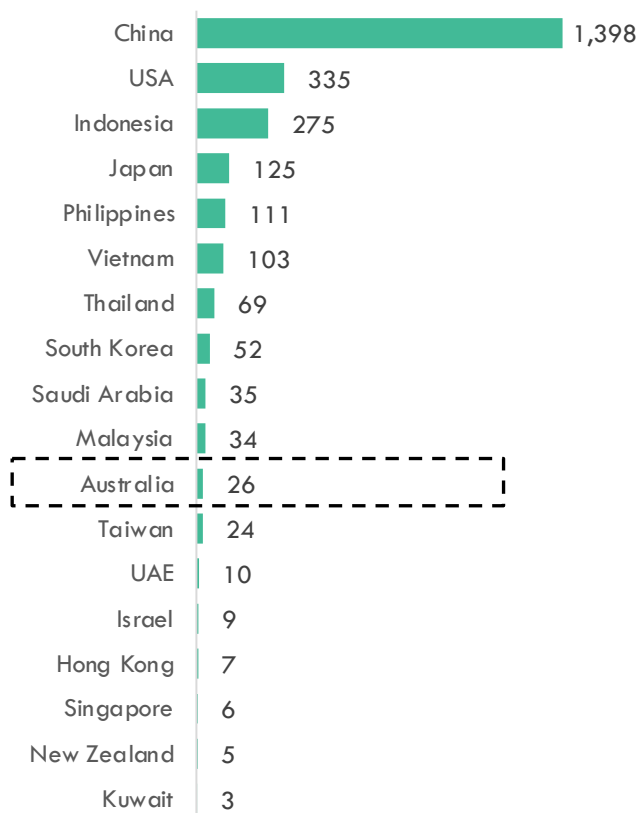
IMPORTS: These markets vary in terms of how much food, beverages, pharmaceuticals and VMS they import

- Markets that import a lot of food and health products will be easier to access going forward

These markets vary both in (1) how many people they have and (2) how much money they have, both (2a) overall and (2b) per person

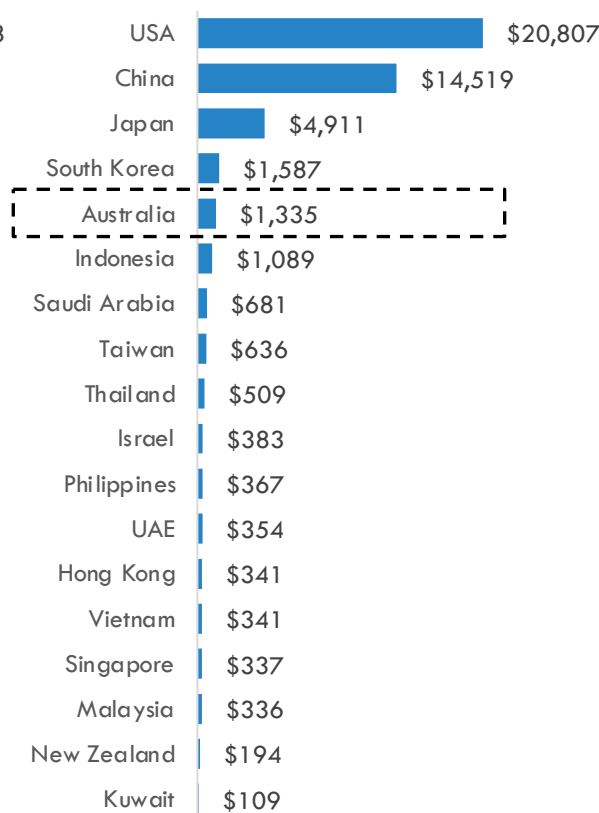
POPULATION

People; m; 2020



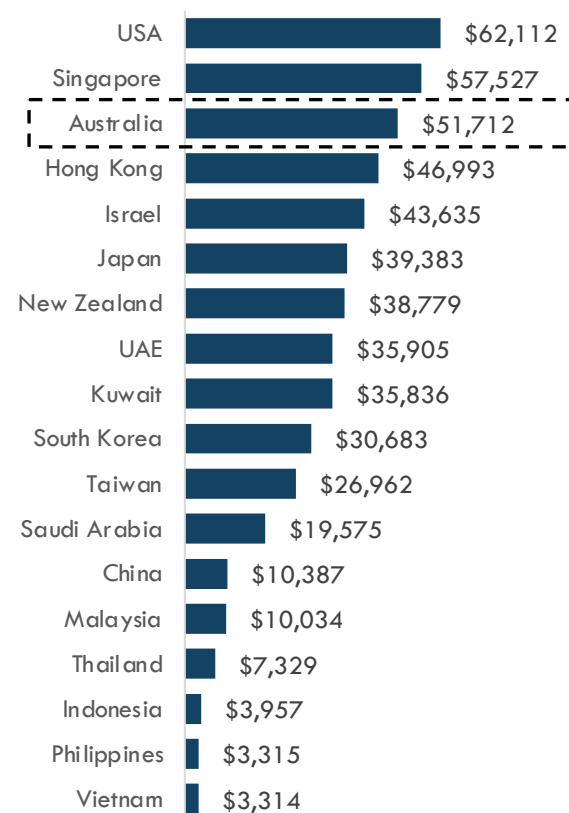
TOTAL ACTUAL GDP*

US\$; b; 2020



GDP PER PERSON

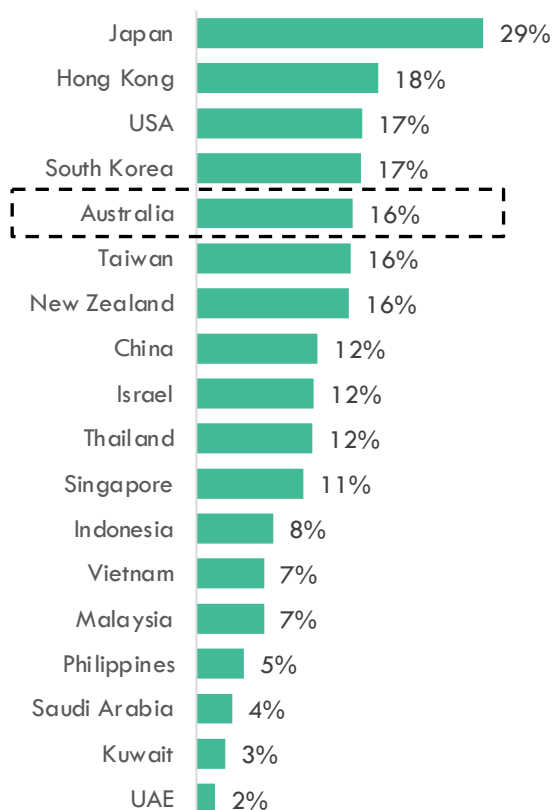
US\$; 2020



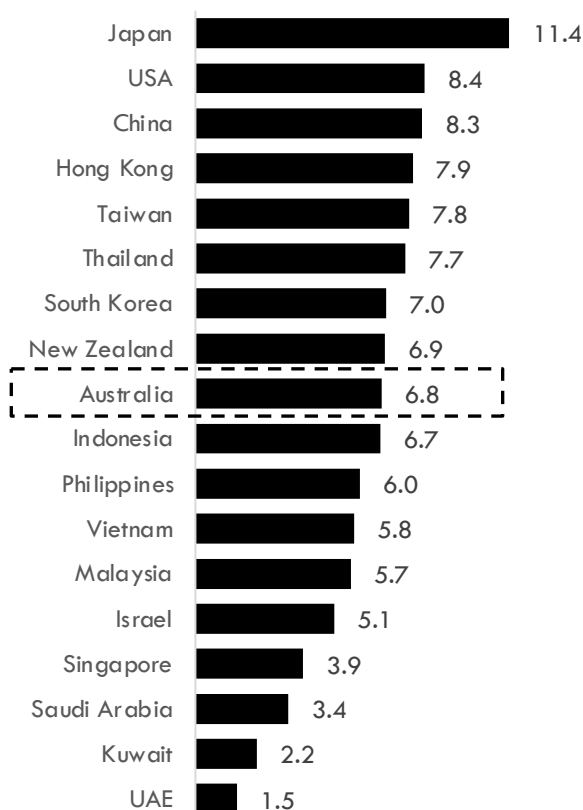
* "Nominal" value at current exchange rates; Source: United Nations; OECD; Coriolis analysis

These markets vary in their general indicators of health, with some having more elderly people and/or more obese people than others

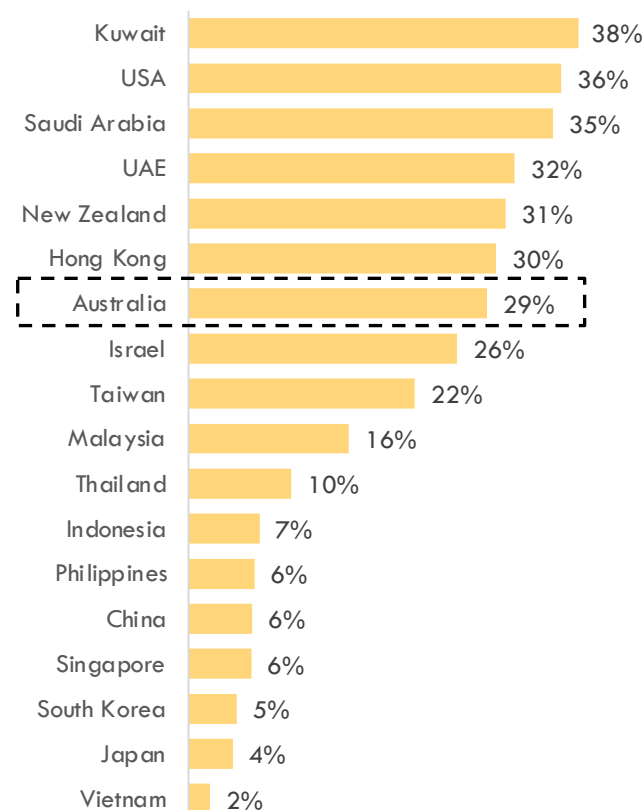
**% OF POP 65+
%; 2020**



**DEATH RATE PER 1,000
#; per 1,000; 2020**

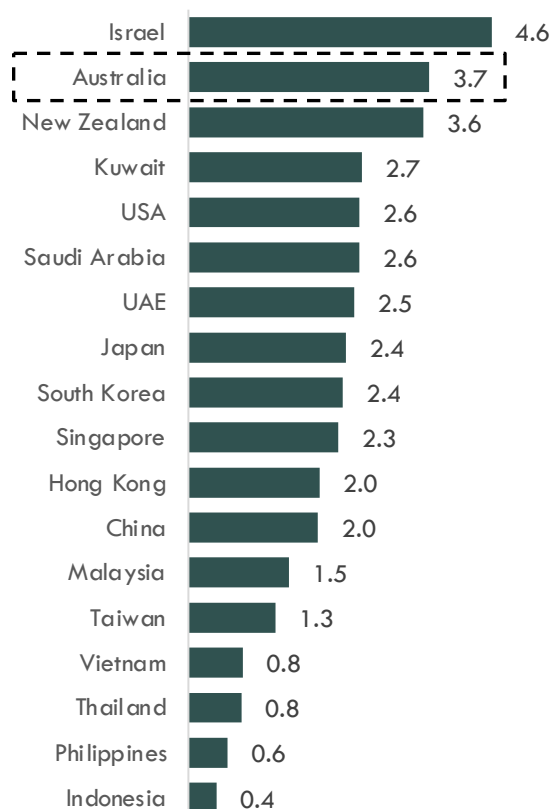


**% WHO ARE OBESE
% of population; 2020**

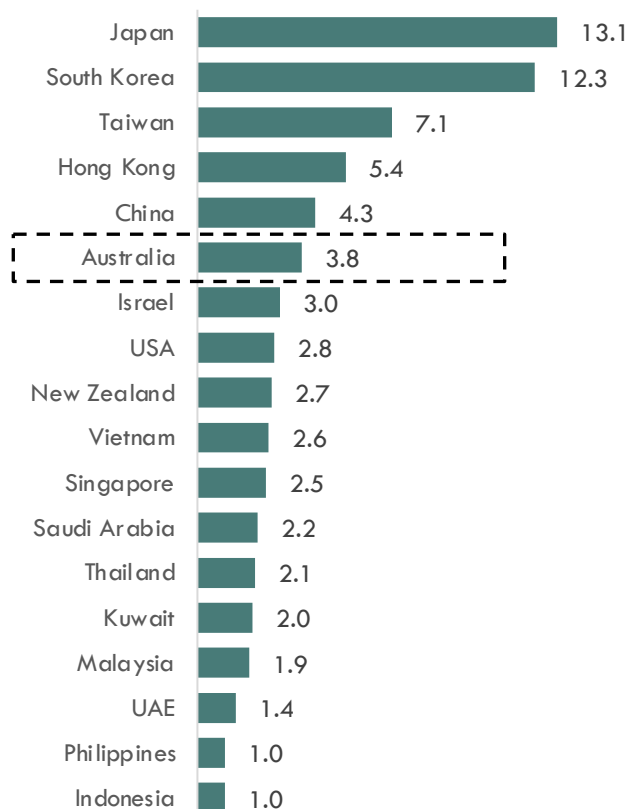


Different markets have different levels of healthcare resources available; some have significantly more doctors, hospital beds and pharmacists than others

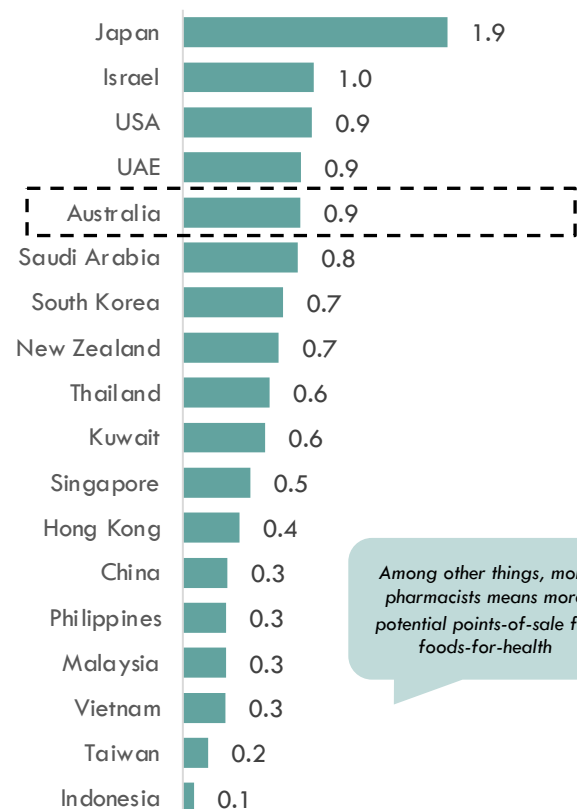
PHYSICIANS 1,000 POP
Head; 2020



HOSPITAL BEDS 1,000 POP
Beds; 2020



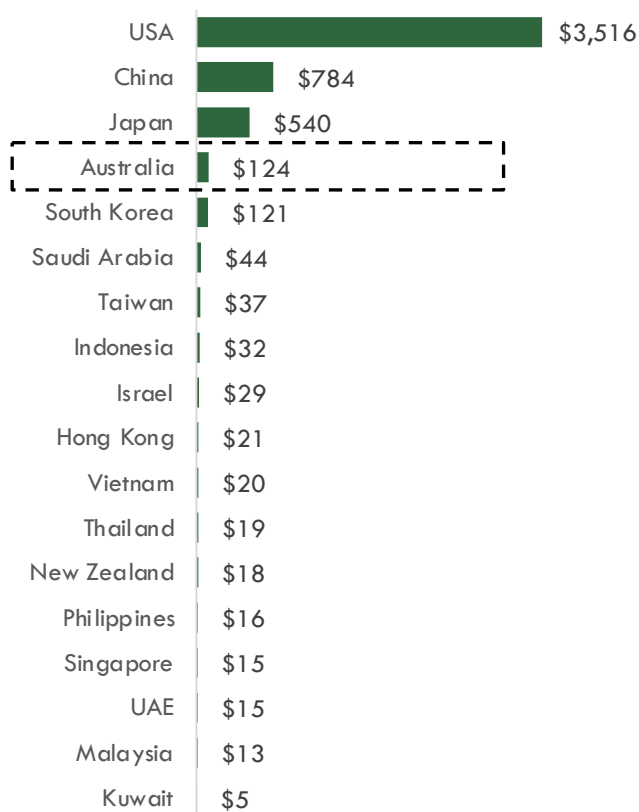
PHARMACISTS PER 1,000 POP
Head; 2020



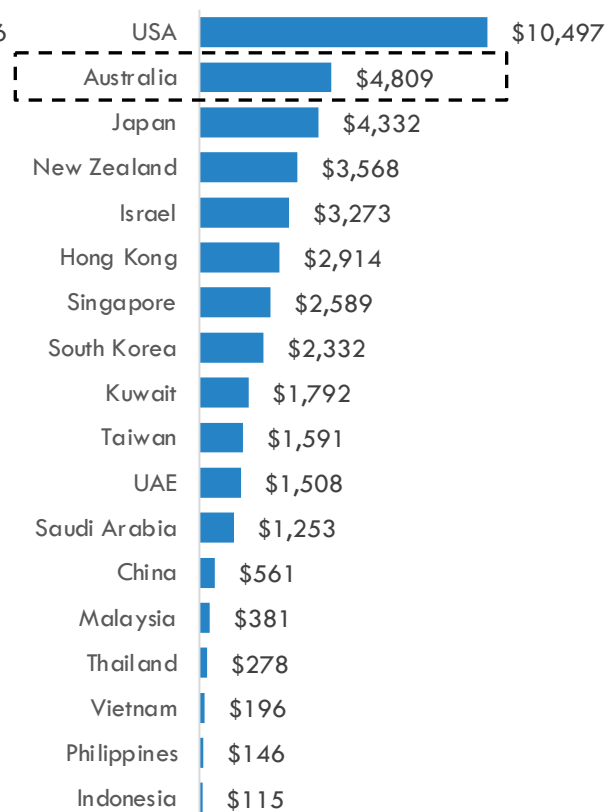
Among other things, more pharmacists means more potential points-of-sale for foods-for-health

These markets vary in terms of the amount they spend on healthcare, both overall and per person; this implies their ability to buy WA foods for health

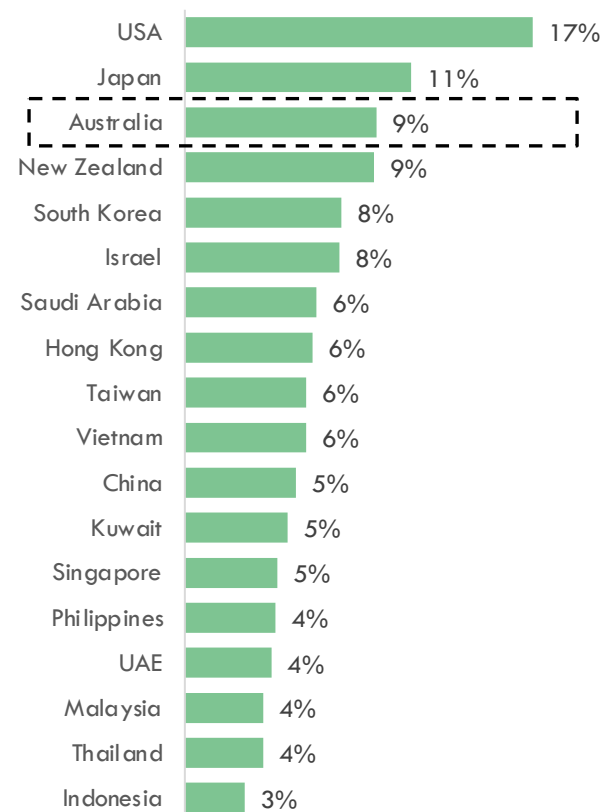
TOTAL HEALTHCARE SPEND
US\$; b; 2020



HEALTHCARE PER PERSON
US\$; 2020



HEALTHCARE % OF GDP
%; 2020



These markets vary in terms of how much food, beverages, pharmaceuticals and VMS they import

VALUE OF TOTAL IMPORTS BY TYPE: KEY TARGET MARKETS

SORTED BY SUM OF ALL FOUR

US\$; b; 2019

FOOD		BEVERAGES		PHARMACEUTICALS		VMS, SIMILAR*	
USA	\$121.9	USA	\$29.8	USA	\$133.6	USA	\$4.7
China	\$126.1	China	\$6.2	China	\$35.3	China	\$2.2
Japan	\$58.8	Japan	\$4.4	Japan	\$27.9	Japan	\$0.8
South Korea	\$27.2	South Korea	\$1.5	South Korea	\$7.5	South Korea	\$1.2
Hong Kong	\$22.4	Hong Kong	\$2.9	Hong Kong	\$2.8	Hong Kong	\$0.6
Australia	\$12.0	Australia	\$2.2	Australia	\$9.1	Australia	\$1.0
Saudi Arabia	\$17.6	Saudi Arabia	\$0.4	Saudi Arabia	\$5.4	Saudi Arabia	\$0.5
UAE	\$15.2	UAE	\$1.3	UAE	\$4.1	UAE	\$0.3
Viet Nam	\$14.3	Viet Nam	\$0.3	Viet Nam	\$3.6	Viet Nam	\$0.6
Taiwan	\$11.1	Taiwan	\$1.4	Taiwan	\$4.4	Taiwan	\$0.4
Malaysia	\$13.5	Malaysia	\$0.7	Malaysia	\$1.8	Malaysia	\$0.5
Indonesia	\$14.2	Indonesia	\$0.2	Indonesia	\$1.1	Indonesia	\$0.5
Singapore	\$8.9	Singapore	\$2.9	Singapore	\$3.3	Singapore	\$0.6
Philippines	\$11.7	Philippines	\$0.7	Philippines	\$1.9	Philippines	\$0.6
Thailand	\$11.0	Thailand	\$0.5	Thailand	\$2.4	Thailand	\$0.5
Israel	\$5.3	Israel	\$0.5	Israel	\$2.8	Israel	\$0.2
Kuwait	\$4.8	Kuwait	\$0.2	Kuwait	\$1.4	Kuwait	\$0.1
New Zealand	\$3.6	New Zealand	\$0.5	New Zealand	\$1.0	New Zealand	\$0.3

* VMS – vitamins, minerals and supplements (uses HS2936 and 60% of HS210690 (estimate); China VMS will exclude Diagon and “courier/post size” shipments; Source: UN Comtrade database; Coriolis past work; Coriolis classification, analysis and estimates

CONDITIONS SUMMARY: *Humans are afflicted by a wide range of conditions, all of which are opportunities from a “FFH” perspective*

- Healthy people can develop “conditions” in a range of ways
 - From a holistic point-of-view, the solution is to stay healthy by eating a healthy diet and exercising regularly
 - A range of factors and actions contribute to conditions
 - Most people are feeling “good” or better most of the time; however, at the same time, they are likely taking multiple health risks
- There are a huge range of infectious diseases, most of which are non-notifiable to health authorities
- Infectious diseases range in terms of risk, from mild (the common cold) through to systemic (COVID-19)
 - Non-infectious (“non-communicable”) diseases are by far the largest killer globally (~70%)
 - The four largest – cardiovascular disease, cancers, chronic lung disease and diabetes – alone account for 57% of all deaths
- Deaths from non-communicable conditions are growing across all target markets
 - Almost half the Australia population has chronic or long-term conditions
 - When things go very wrong with the body, people die – for a huge range of reasons; 936 different causes of death were recorded in Australia in 2019
 - Causes of death are grouped into categories by the medical system; with a small number of large categories (cancer, cardiovascular, respiratory, mental and brain/nervous system) accounting for most deaths in Australia
 - In terms of cost to society, cancer, cardiovascular and metabolic/obesity related conditions stand out
 - While there is variance between markets, this is more a matter of degree; all markets suffer from all conditions



The flowchart illustrates the pathways from healthy people to permanent disability or death. It starts with 'HEALTHY PEOPLE' (green box). A large grey arrow points down to a light green box labeled 'Factors and actions that contribute to continued health (e.g. exercise, diet)'. From 'HEALTHY PEOPLE', a solid arrow leads to box 1: 'Factors & actions that contribute to conditions (e.g. behaviour, smoking, diet)'. Box 1 has solid arrows leading to box 2: 'INFECTIOUS DISEASES' and box 3: 'NON-INFECTIOUS DISEASES'. Box 3 has a solid arrow leading to box 4: 'CHRONIC/LONG-TERM CONDITIONS'. Box 2 has a solid arrow leading to box 5: 'DEATH'. Box 4 has a solid arrow leading to box 5. Both box 4 and box 5 have solid arrows leading to 'PERMANENT DISABILITY' (red box). A dashed arrow labeled 'Recovery' points from 'PERMANENT DISABILITY' back to 'HEALTHY PEOPLE'. Dashed arrows also point from box 1 back to 'HEALTHY PEOPLE' and from box 3 back to box 1.

From a holistic point-of-view, the solution is to stay healthy by eating a healthy diet and exercising regularly

“An eating plan that helps manage your weight includes a variety of healthy foods. Add an array of colors to your plate and think of it as eating the rainbow. Dark, leafy greens, oranges, and tomatoes—even fresh herbs—are loaded with vitamins, fiber, and minerals. Adding frozen peppers, broccoli, or onions to stews and omelets gives them a quick and convenient boost of color and nutrients.”



Centers for Disease Control and Prevention
CDC 24/7: Saving Lives. Protecting People™

“The Australian Dietary Guidelines have information about the types and amounts of foods, food groups and dietary patterns that aim to:
(1) promote health and wellbeing; (2) reduce the risk of diet-related conditions, such as high cholesterol, high blood pressure and obesity; and
(3) reduce the risk of chronic diseases such as type 2 diabetes, cardiovascular disease and some types of cancers. A healthy diet improves quality of life and wellbeing, and protects against chronic diseases... Unfortunately, diet-related chronic diseases are currently a major cause of death and disability among Australians.”

eatforhealth.gov.au

“Good food and nutrition can help you stay healthy and reduce your risk of diet related chronic disease. Healthy eating means choosing the right foods and knowing how much to have.”



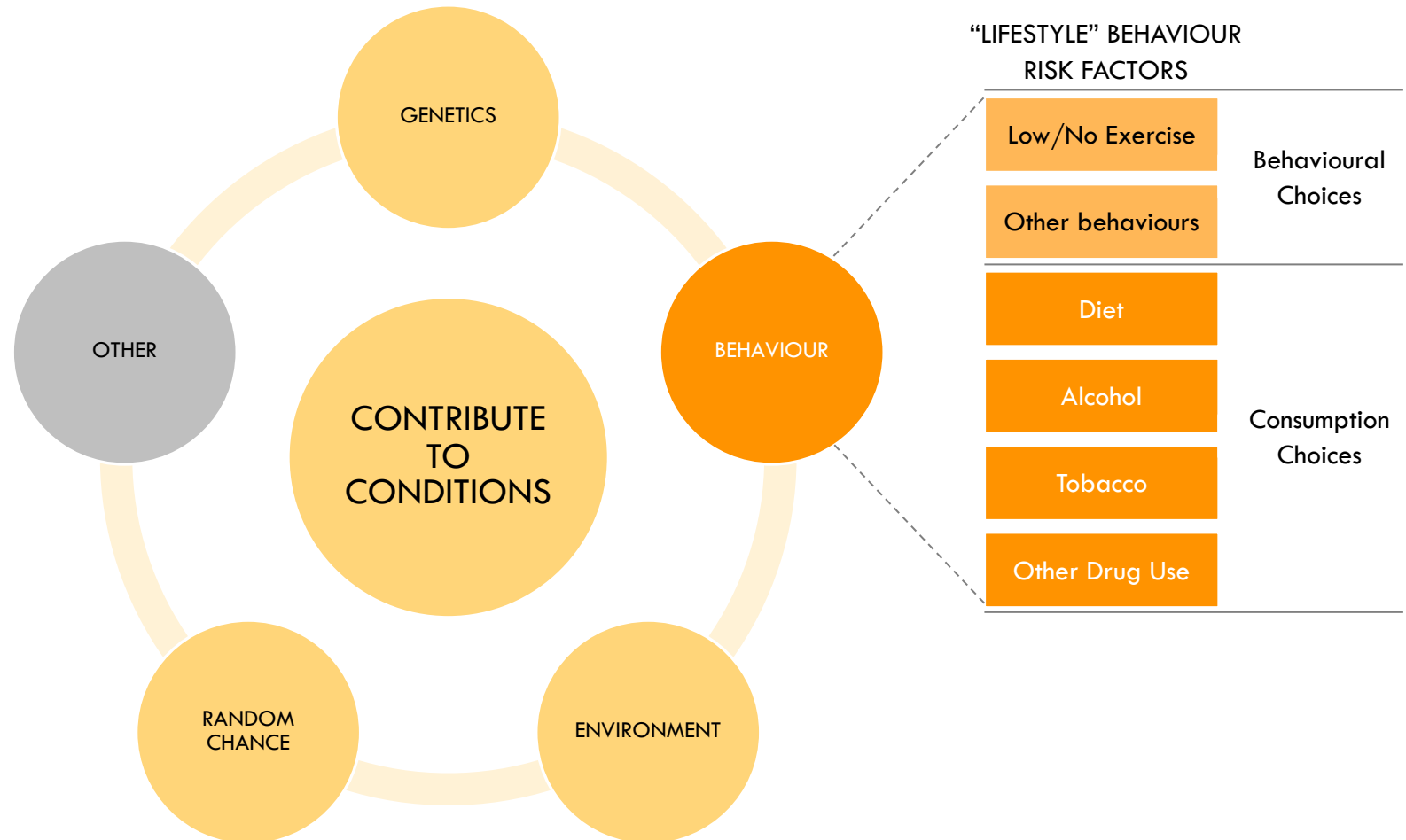
Australian Government
Department of Health

“Choose and/or prepare foods:
(1) with unsaturated fats instead of saturated fats
(2) that are low in salt (sodium); if using salt, choose iodised salt
(3) with little or no added sugar
(4) that are mostly ‘whole’ or less processed.”



A range of factors and actions contribute to conditions

SIMPLIFIED MODEL OF FACTORS AND ACTIONS THAT CONTRIBUTE TO CONDITIONS

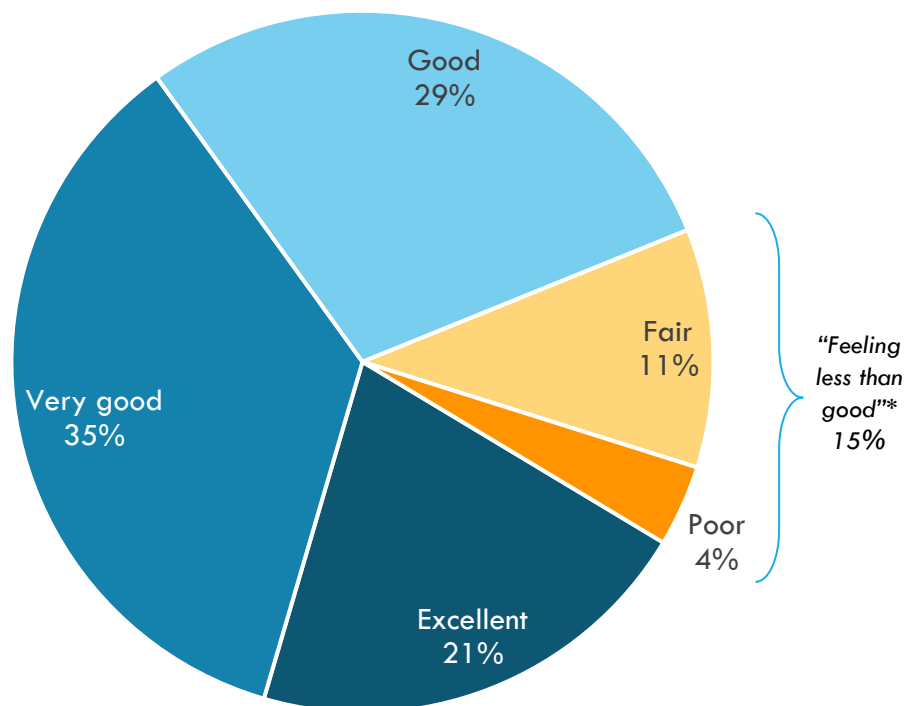


Most people are feeling “good” or better most of the time; however, at the same time, they are likely taking multiple health risks

HOW IS YOUR HEALTH? HEALTH STATUS

% of AU population 15+; 2018

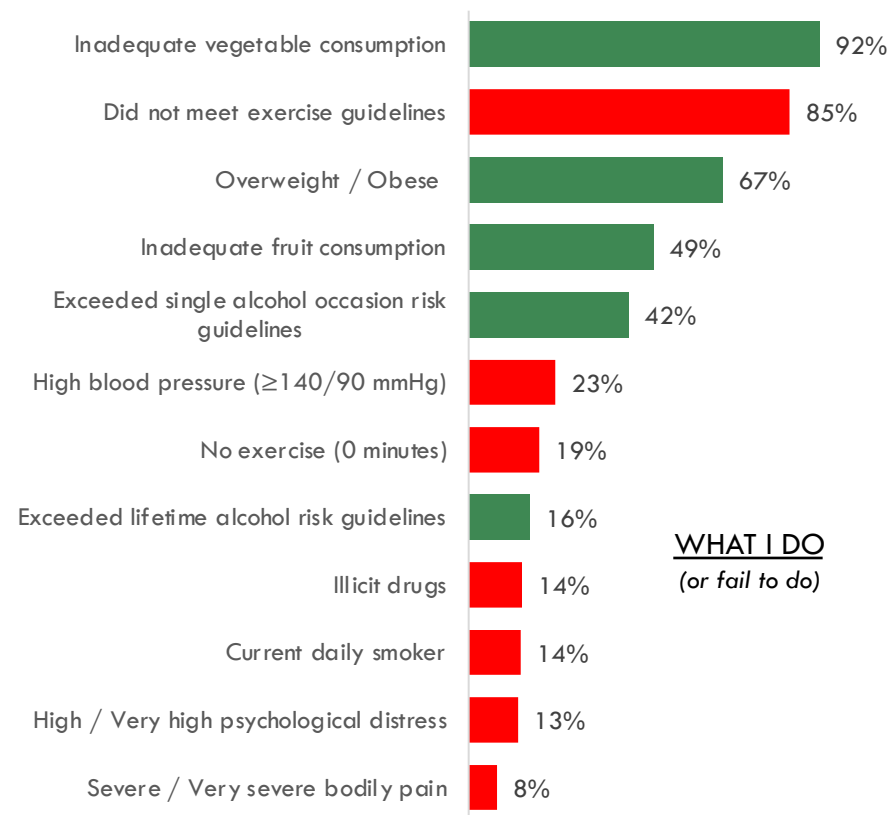
SELF-ASSESSED HEALTH STATUS
MULTIPLE-CHOICE QUESTION



TOTAL = 19.5m Australians over 14

SELECT/KEY HEALTH RISK FACTORS

% of AU population 15+; 2018



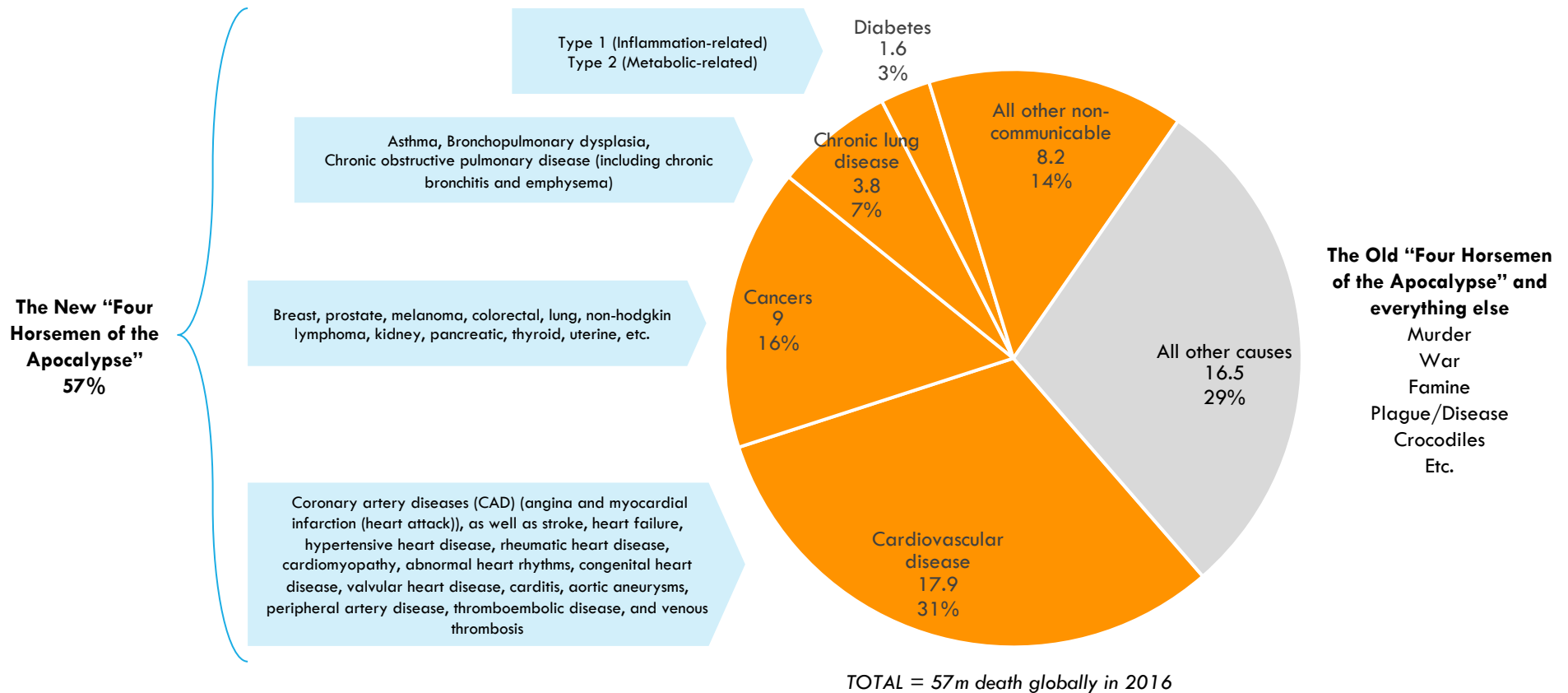
Infectious diseases range in terms of risk, from mild (the common cold) through to systemic (COVID-19)

INFECTIOUS DISEASES BY RISK

LOW		RISK		HIGH
"COMMON COLD"	"FLU" / INFLUENZA	OTHER INFECTIONS DISEASES	COVID19	
<p>The average adult gets 2-4 colds per year</p> <p>Typically caused by Rhinevirus (10-40%), followed by various coronavirus and respiratory syncytial virus (RSV)</p> <p>~200 other virus can cause a "cold"</p> <p>Symptoms typically 1-2 weeks</p> <p>No cure</p> <p>Wash your hands</p>	<p>Seasonal flu</p> <p>5-20% of the population gets it annually</p> <p>Reduced with annual vaccinations</p> <p>Annually kills 646,000 people globally</p>	<p>Two types: notified (must be reported to government) and non-notified (reporting not required)</p> <p>Many can be cured with proper treatment</p> <p>NOTIFIED</p> <p>Various sexually transmitted diseases (STDs)</p> <p>Various hepatitis</p> <p>Tuberculosis</p> <p>Ross River Virus</p> <p>Etc.</p> <p>NON-NOTIFIED</p> <p>Lower respiratory infections</p> <p>Other gastrointestinal infections</p> <p>Other</p>	<p>Systemic risk at this point</p> <p>Driving for zero cases inside Australia</p> <p>Australian borders closed as a result</p>	

Non-infectious (“non-communicable”) diseases are by far the largest killer globally (~70%); the four largest alone account for 57% of all deaths

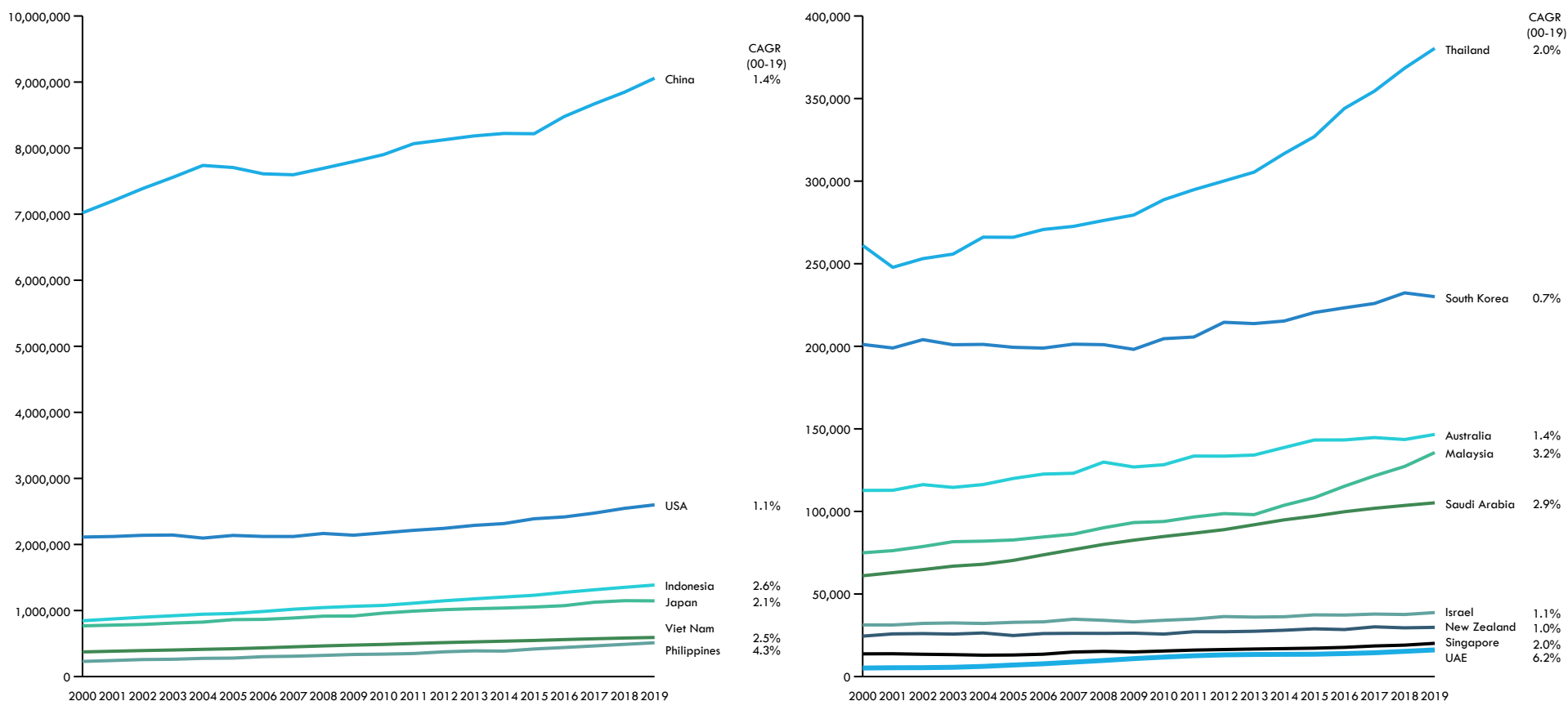
GLOBAL DEATHS FROM NON COMMUNICABLE DISEASES



Deaths from non-communicable conditions are growing across all target markets

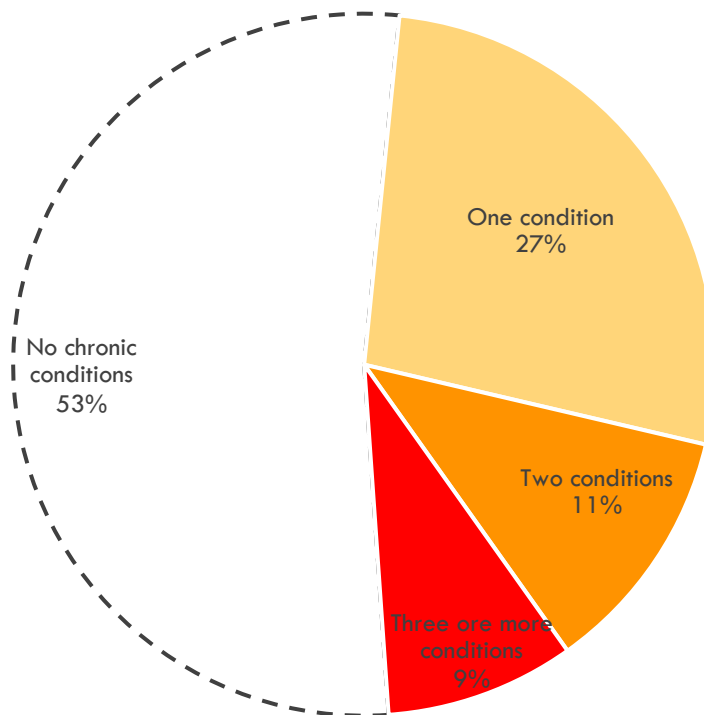
TOTAL DEATH FROM NON-COMMUNICABLE DISEASES: SELECT COUNTRIES

Deaths; 2000-2019



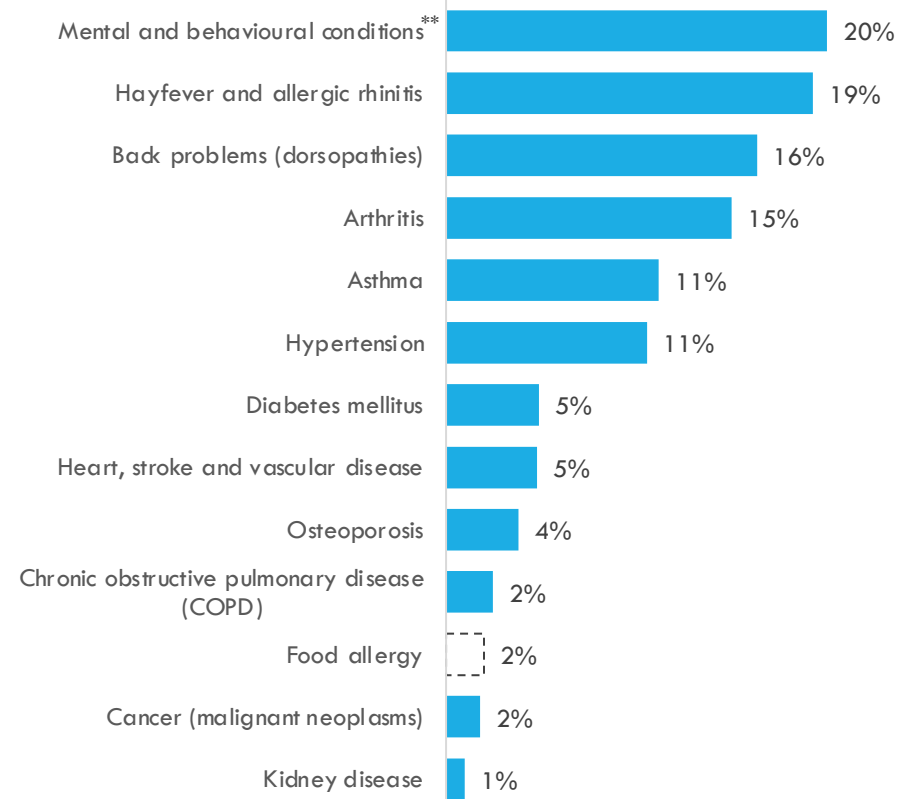
Almost half the Australia population has chronic or long-term conditions

NUMBER OF LONG-TERM CONDITIONS % of Australian population; 2018



TOTAL = 24.1m people in Australia in 2018

LONG-TERM CONDITIONS INDICATED % reporting; 2018*

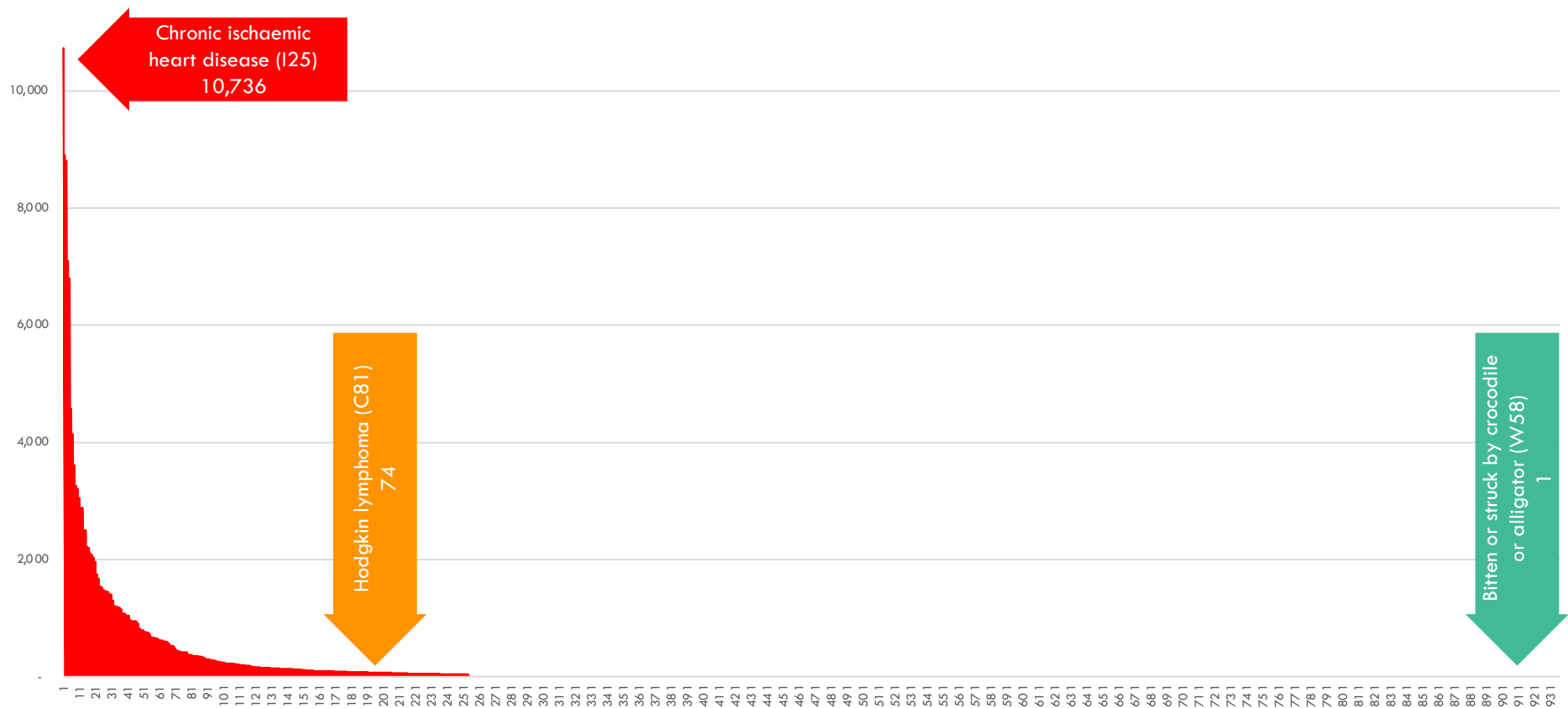


* Except food allergies which is 2016 data; ** "Includes alcohol and drug problems, mood (affective) disorders, anxiety related disorders, organic mental disorders and other mental and behavioural conditions"; Source: ABS (4364.0 2017/2018 National Health Survey: First Results, 2017-18 — Australia; Table 1.1); ASCIA PCC Food allergy 2016 (food allergy data); Coriolis analysis

When things go very wrong with the body, people die – for a huge range of reasons; 936 different causes of death were recorded in Australia in 2019

UNDERLYING CAUSE OF DEATH IN AUSTRALIA BY ICD-10 CODE

Deaths; all causes; 2019



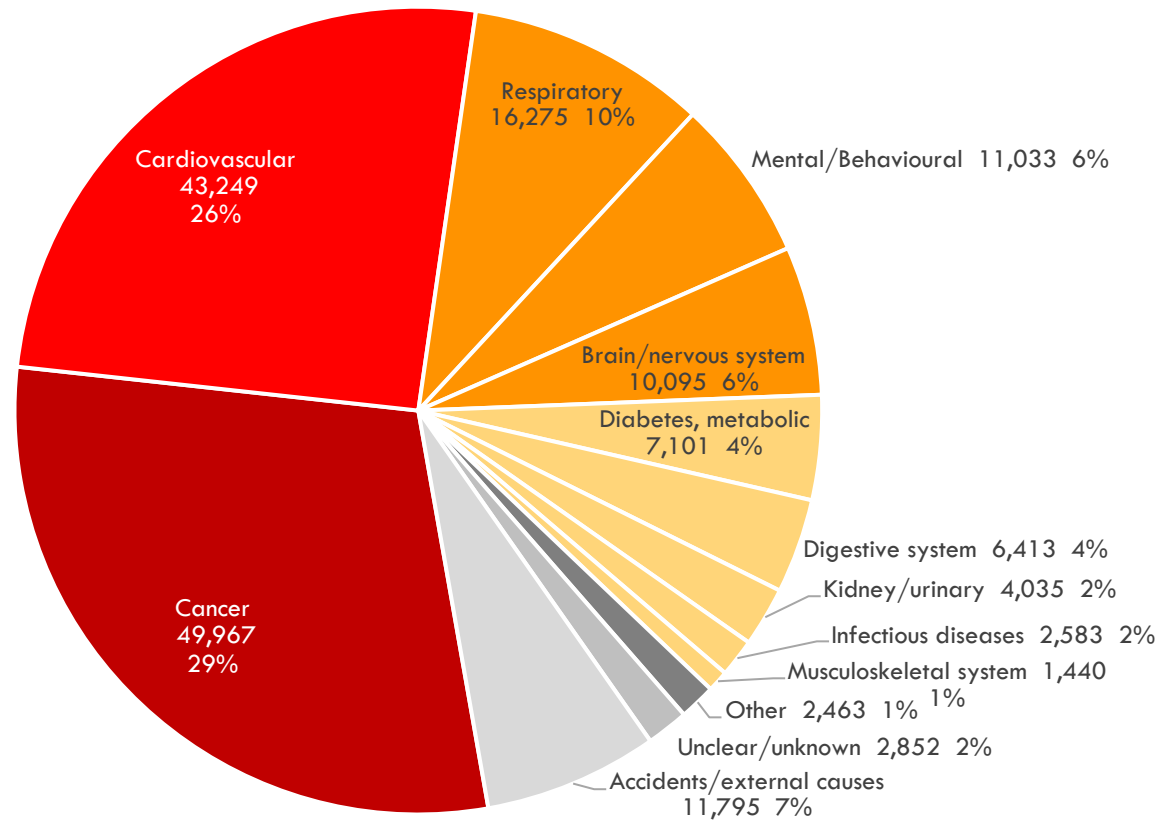
Note: X-Axis is raw count not rank; multiple conditions will "tie"; for example, 147 different causes recorded "1" in 2019; excludes ICD-10 codes with "0" death in 2019; Source: ABS 3303.0 (3303.0 Causes of Death, Australia, 2019; table 1.1); Coriolis analysis

Causes of death are grouped into categories by the medical system; with a small number of large categories accounting for most deaths

UNDERLYING CAUSE OF DEATH IN AUSTRALIA BY ICD CHAPTER

Deaths; all causes; 2019

TOP 2
55%



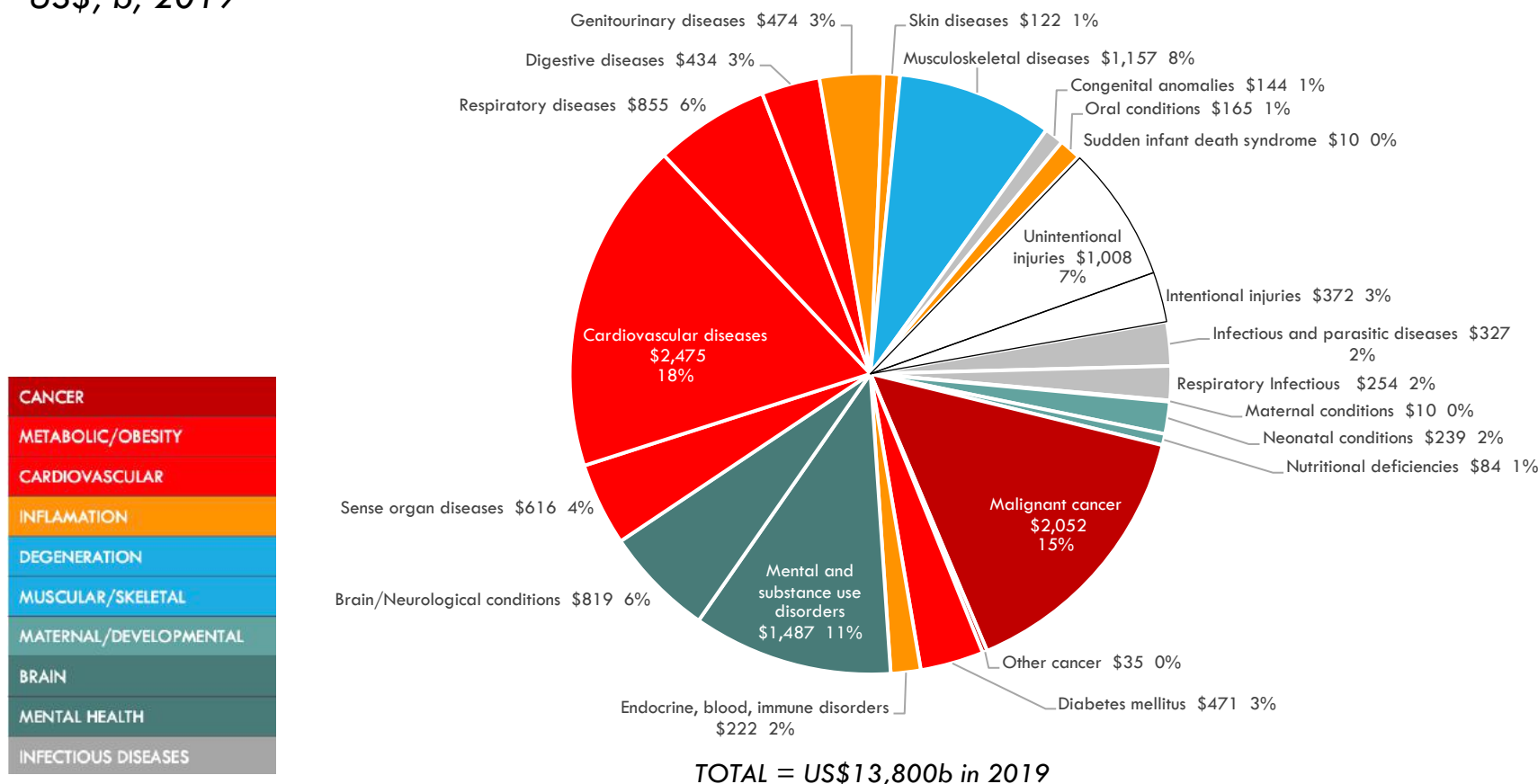
TOP 5
(x accidents)
71%

TOP 10
(x accidents)
90%

TOTAL = 169,301 deaths in Australia in 2019

In terms of cost to society, cancer, cardiovascular and metabolic/obesity related conditions stand out

ESTIMATED ANNUAL COST OF “DALY”* LOST BY CONDITION: ALL DEFINED MARKETS US\$; b; 2019



* Disability Adjusted Life Years; Note: Calculation is (DALY years from condition) * (GDP/capita); Source: WHO; World Bank; Coriolis assumptions, estimates and modelling

While there is variance between markets, this is more a matter of degree; all markets suffer from all conditions

ESTIMATED ANNUAL COST OF “DALY”^{*} LOST BY CONDITION: SELECT MARKETS US\$; b; 2019

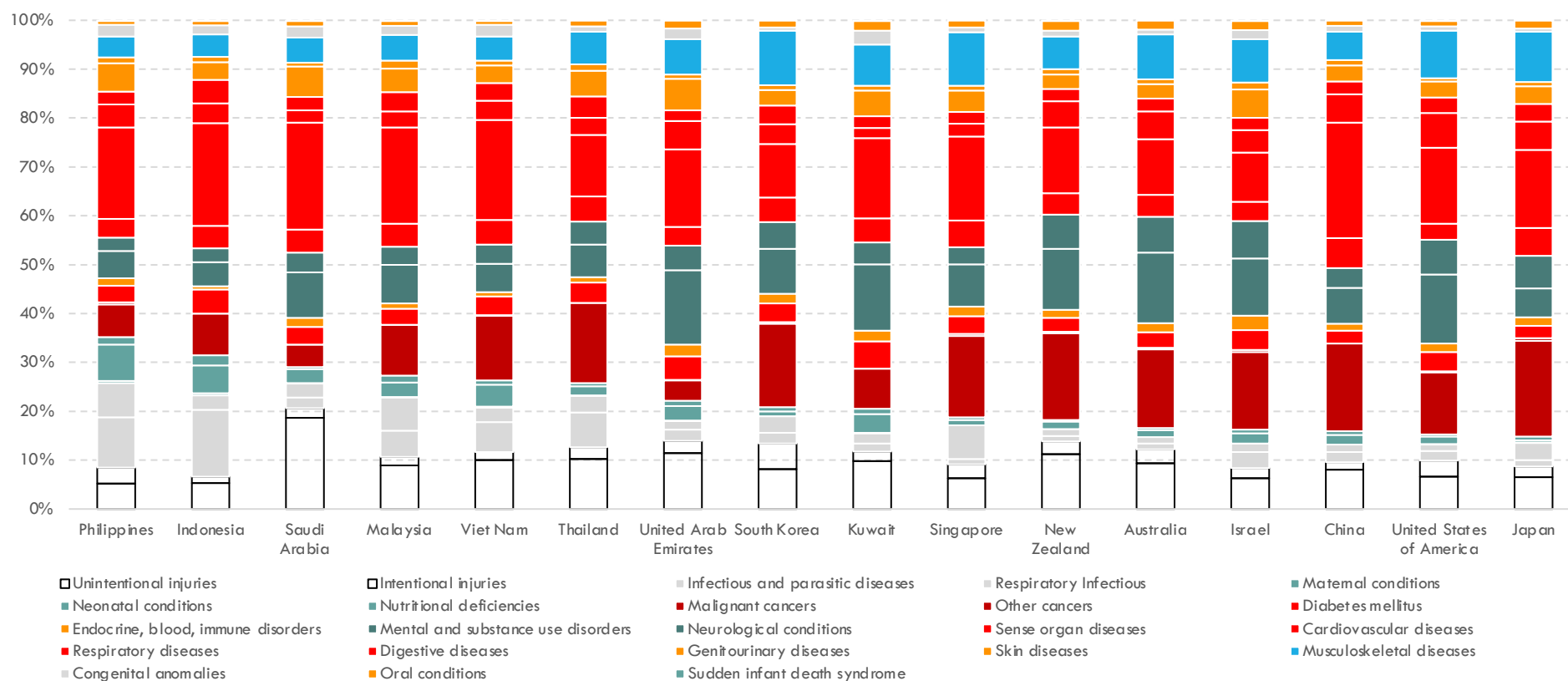


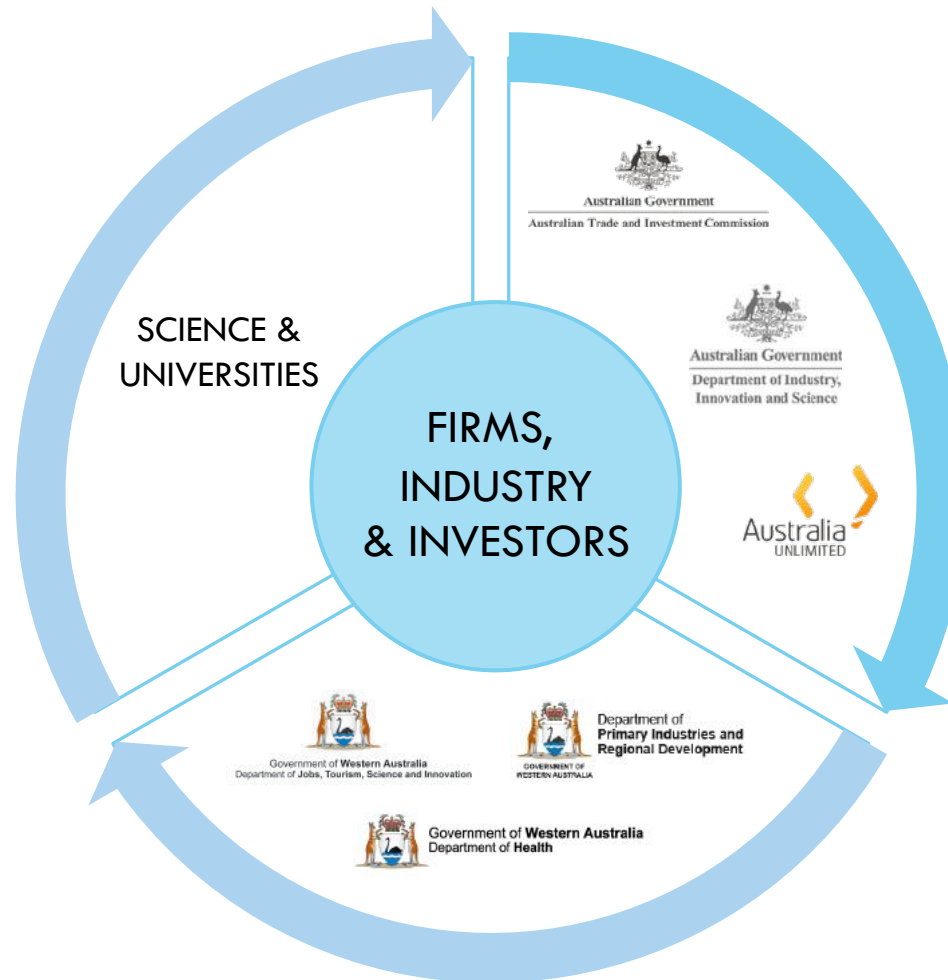
TABLE OF CONTENTS

page 7	page 17	page 54	page 75	page 105	page 133
<i>Context, Markets and Process</i>	<i>Conditions, Concepts and Challenges</i>	<i>Health Focused Dairy/Alternative Dairy</i>	<i>Oat Extracts</i>	<i>Plant Proteins</i>	<i>Medical/Health Focused Ready Meals</i>
page 161	page 205	page 233	page 262	page 337	
<i>Botanical Waste Streams</i>	<i>Meat Extracts</i>	<i>Bushcrop Extracts</i>	<i>Other Opportunities</i>	<i>Appendix I Markets & Conditions Details</i>	

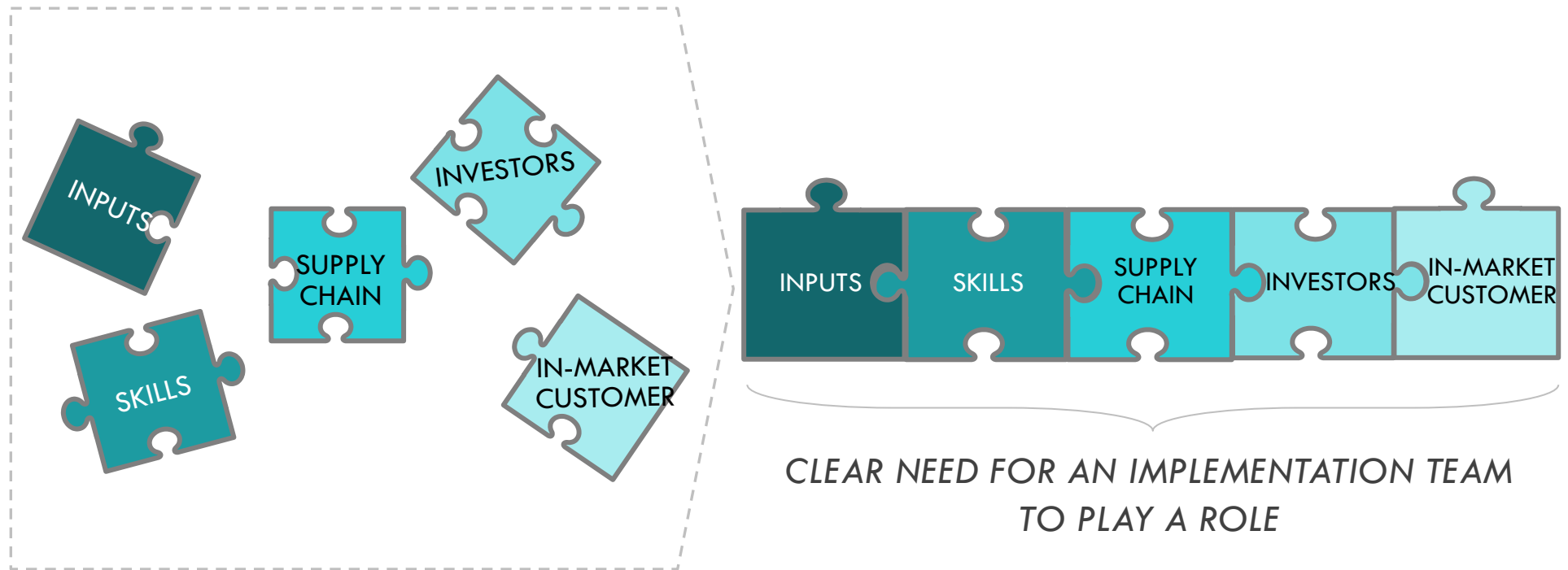
Stakeholder, investors and all levels of government need to work collaboratively to realise the Foods For Health opportunity

KEY STAKEHOLDERS

Model; 2021



A focused implementation team is needed to bring together the critical “pieces of the puzzle” required to deliver on the plan



Western Australia has a clear action plan to realise the Food For Health opportunity

PRELIMINARY/PROPOSED

