



NEW ZEALAND'S FUTURE ROLE IN THE GLOBAL PROTEIN MARKET

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Two roads diverged in a wood, and I—
I took the one less travelled by,
And that has made all the difference.

CONTENTS

List of figures.....	1
List of plates.....	2
1 Executive Summary.....	3
2 Introduction.....	4
3 Aims and objectives.....	5
4 Findings.....	5
4.1.1 Impossible Foods www.impossiblefoods.com	8
4.1.2 Beyond Meat www.beyondmeat.com	9
4.1.3 Hampton Creek www.eatjust.com	10
4.2 synthetic meat based products.....	10
4.2.1 Memphis Meats www.memphismeats.com	11
4.2.2 Modern Meadows www.modernmeadow.com	12
4.2.3 Perfect Day www.perfectdayfoods.com	13
4.2.4 Clara Foods www.clarafoods.com	14
4.3 the rise and rise of the millennial consumer.....	15
5 Discussion- 20, 20, 60.....	17
6 Conclusion.....	20
7 Acknowledgements.....	20
8 References.....	21

LIST OF FIGURES

Figure 4.1. Rising overweight (including obesity) rates in adults aged 15-74 years of age.....	8
List of tables	

LIST OF PLATES

Plate 4.1. Summary table from a marketing report of resources required to produce a Impossible burger versus a conventional burger. Image sourced from https://impossiblefoods.app.box.com/v/presskit/file/176187206081	7
Plate 4.2. An image of the Impossible Burger. Image courtesy of Impossible Foods Ltd (www.impossiblefoods.com)	9
Plate 4.3. An example of marketing efforts employed by the Beyond Meat company highlighting health, environmental, and animal welfare differences between the Beyond Burger and traditional beef-based meat patties.....	9
Plate 4.4. The range of products currently supplied by Hampton Creek. Image sourced from www.eatjust.com	10
Plate 4.5. The original Memphis Meats Meatball. Image sourced from www.memphismeats.com ...	12
Plate 4.6. Animal free leather products as produced by Modern Meadows. Image sourced from http://www.modernmeadow.com/our-technology/	13
Plate 4.7. An example of Perfect Day animal-free milk products namely their animal free milk and brie cheese. Image sourced from perfectdayfoods.com	14
Plate 4.8. The Clara foods brand and their marketing styles. Image sourced from www.clarafoods.com	15
Plate 4.9. A breakdown of the generations. Note that this is missing generation Z born between 1995-2010.	15

1 EXECUTIVE SUMMARY

Change is constant and the change of pace for the global supply of protein and its make up is going to alter considerably over the next 20 years. Alternative protein sources such as through the rise of plant based and synthetic meat products will take place of the current traditional commodity meat market across the globe. The methods have been developed and the only current restriction is scalability of production and market acceptance. As technology advances, this scalability will improve and eventually become at least cost neutral to traditional sources of protein production. As and when this occurs is somewhat academic and will be up for debate but nevertheless it will happen and eventually significantly undercut these prominent markets resulting in significant deterioration in the manufacturing beef market such as bull beef and cull cows. Market acceptance of course is also a major challenge currently but through advanced marketing campaigns, increased urbanisation and scepticism of the traditional methods of protein production, this too won't be a major issue in years to come. This report attempts to briefly summarise the existing companies which are in the alternative protein or synthetic protein markets and identify timing when they expect to be selling their products into the global market. Currently, they tend to be targeting premium consumers themselves but as supply issues are lessened with improved scalability, their market objectives will change to suit. There are wide ranging calls for the New Zealand animal protein production industry to improve its marketing campaign to tell the New Zealand story. This is a story of clean, green production- one where animal welfare and environmental considerations are paramount. This story will be important for the discerning premium consumer- one whom understands the role of pastoral agriculture and looks to consume premium products at will at their social and family gatherings. In addition to this, this report tries to ascertain other premiere market opportunities; these are areas of production of nutraceutical and medicinal food products which are nutritionally wholesome for people on the go, foods which supply 100% of an individual's protein, mineral or vitamin requirements. As health and science continues to improve, people will continue to live to older ages resulting in a need to supply medicinal food groups- food which makes a person healthier thereby in time largely eliminating 'ambulance at the bottom of the cliff' health services until later and later life. Another significant market opportunity is the supply of easy to consume snack food groups, our lives continue to get busier therefore eating three times a day can be considered as a chore and minimised so to spend more time doing activities we want to do. There is a requirement to coerce elements of the New Zealand supply chain to agree to a consensus in terms of this story and market to the globe as a New Zealand brand initiative. This is a necessary step in order to make connections with the premium consumers of the future- primarily millennials and Generation X's as well as paediatric care and infant specialties. Our future as an industry will be in

the production of high end consumable products which attain a premium for the discerning consumer, this is especially as these alternative protein production companies increase supply and progressively take market share of the commodity supply chains.

2 INTRODUCTION

New Zealand agricultural production is currently facing a crossroads situation, historically, the industry has excelled in the production of commodity goods but there is change afoot and as a consequence much hype around pathways for sustainable profitability as an industry. This unprecedented change is primarily through the impact of consumer choice options with alternative protein sources coming onstream; this accompanied with increasing environmental concerns from the public and a perceived loss of the social license to operate for the dairy sector as well as animal welfare concerns will result in a more sceptical consumer in the future. In this sense, there is a need for the wider New Zealand agriculture industry to recognise that change is necessary and create sector wide strategies to take this challenge head on. In this report, I aim to identify the main areas for change and identify premium market opportunities for the New Zealand agricultural animal protein industry. These three main pathways involve entering the premium market; creation of fully sustainable ethical, naturally raised products for the high-end consumers, another is the creation of specialist food groups designed for medicinal or functional purposes- complete or fortified food groups for premium markets and the third- the supply of 'on the go' snack foods and associated simplified supply chain models .

There is currently much hype on the future of global protein production and the potential implications that plant based 'meat substitute' meat and 'synthetic meat' may have on the traditional forms of animal protein production globally. In the last decade, there has been considerable investment in many aspects of the synthetic protein trade and as of today, there are numerous companies designed and developing 'meatless meat'; meat patties which look, taste, smell and cook like the real thing but are 100% plant-based components. This in conjunction with synthetic meat products will soon be widely available to the global consumer. Indeed, there will be a small window of opportunity for the New Zealand agri-food market to prepare for wide sector disruption, but this window is fast closing. There is a need to prepare for this change and paradigm shift in protein production and in time consumer purchasing power. As an industry- we need to understand the implications of this change, adapt and market our products to the highest bidder in order to remain relevant in the global protein market.

3 AIMS AND OBJECTIVES

The objectives and purpose of this report are to provide the reader an overview of the current state of the plant based and synthetic protein markets as they currently stand. For this, there will be a review of the current reasoning for change and then brief summaries of the main companies involved globally. Next, the report will focus on options New Zealand animal agriculture industry may need to make to ensure it remains relevant to the changes in global food demands. I will then attempt to provide a summary of the goals and objectives required to ensure opportunity for the NZ agriculture animal industry to improve market share, or at least remain relevant to the international consumer and increase profitability for the producer in what is expected to be a very turbulent time for protein production systems around the globe.

4 FINDINGS

The rise of companies attempting to produce alternative protein products has risen markedly in the last 10-15 years. It is interesting to note that veggie burgers and meatless patties have been available in the market for a long time, but these have been purely an alternative to meat-based patties and sold/marketed as a product for vegetarians. Products such as tofu and vegetarian burgers and sausages are widely available in your local supermarket so their existence *per se* is nothing new. The changes we have seen in the last 10 years are the rise of companies attempting to create products which as best as possible taste equivalent to animal-based meat products

The rise of these alternative protein companies comes about through perceived issues of intensive animal agriculture issues across the world. These are primarily

- **Animal welfare**

Global intensive animal agriculture production systems can be perceived to have a wide range of animal welfare concerns, in some industries these are widely documented, particularly in the pig and poultry systems of production. Consumers of these products are becoming more aware and critical of where their food comes from and as such an understanding of the production lifecycle of animals is being taken up, particularly in more affluent markets. As the global populations move further into urban environments, the link back to a rural scene is further and further removed and hence the 'link' to where their food comes from is removed. When they view the current methods and operations for the large-scale animal production systems that we know today, issues of animal welfare are often raised; this in turn is used widely through marketing channels as an issue for these markets. Alternative protein production companies can use these

perceived issues as a marketing tool to alter consumer buying decisions away from those traditional sources of protein to these start up alternative protein companies.

- **Environmental issues**

It is widely accepted that intensive ruminant agriculture production systems do play a significant role in global greenhouse gaseous emissions and potentially a major contributor of anthropological climate change issues. The livestock sector contributes approximately 14.5% of global greenhouse gas emissions (Rojas-Downing, 2017) and with an increasing human population, it is expected that the demand for livestock products will double by the year 2050 (Rojas-Downing, 2017). Of interest, it is considered that cattle account for approximately 65% of these global greenhouse gas emissions (Gerber, 2013). These issues of the impact of international animal agriculture are increasingly being reported and this information is making its way and being widely disseminated into the general population. Such that, the rise of veganism or vegetarianism is increasing internationally. Another interesting and recently termed phrase is the rise of flexitarianism or reduceitarianism; people who have the likes of 'meatless Mondays' and actively choose days of the week in which they do not consume meat or animal-based products. This provides a sense of self-worth for people 'doing their bit' for the globe and actively reducing the demand for animal-based products and therefore through association helping the global environment and perceived reduction in global greenhouse gaseous emissions.

There are reports, and marketing material produced from these plant based alternative protein companies that the use of resources is much reduced when compared to natural biological production systems. An example is life cycle analysis produced from Impossible Foods which states that there is 87% less gaseous losses (CO₂ equivalents), 95% less land use and 75% less water used to produce the same quantity of product and all without hormones, antibiotics, cholesterol or artificial flavours added (Plate 4.1).

CONVENTIONAL BURGER

2.3 - 7.4 
KILLOGRAMS OF CO2 EMISSIONS

20.5 - 23.5 
GALLONS OF H2O FOR DRINKING AND CROPS

83 - 251* 
SQ FEET FOR GROWING AND RAISING FEED CROP

IMPOSSIBLE BURGER

0.8 
KILLOGRAMS OF CO2 EMISSIONS

6.0 
GALLONS OF H2O FOR DRINKING AND CROPS

4.5 
SQ FEET FOR GROWING AND RAISING FEED CROP

Plate 4.1. Summary table from a marketing report of resources required to produce a Impossible burger versus a conventional burger. Image sourced from <https://impossiblefoods.app.box.com/v/presskit/file/176187206081>

- Human health and nutrition

The western society is facing unprecedented health and disease risks with many countries reporting obesity rates in excess of 40% of the population (Figure 4.1; New Zealand figures report 29% in women and 33% in men (OECD, 2017). There is much speculation that much of this ill health and rising rates of cancer, diabetes, cholesterol and heart conditions are to do with our diet including the over consumption of meat and animal products and over-eating in general. This accompanied with an urbanised sedentary lifestyle is a major factor in these increasing global health concerns. This is giving rise to re-balancing food consumption to a higher proportion of plant based products with perceived improved health benefits as a result

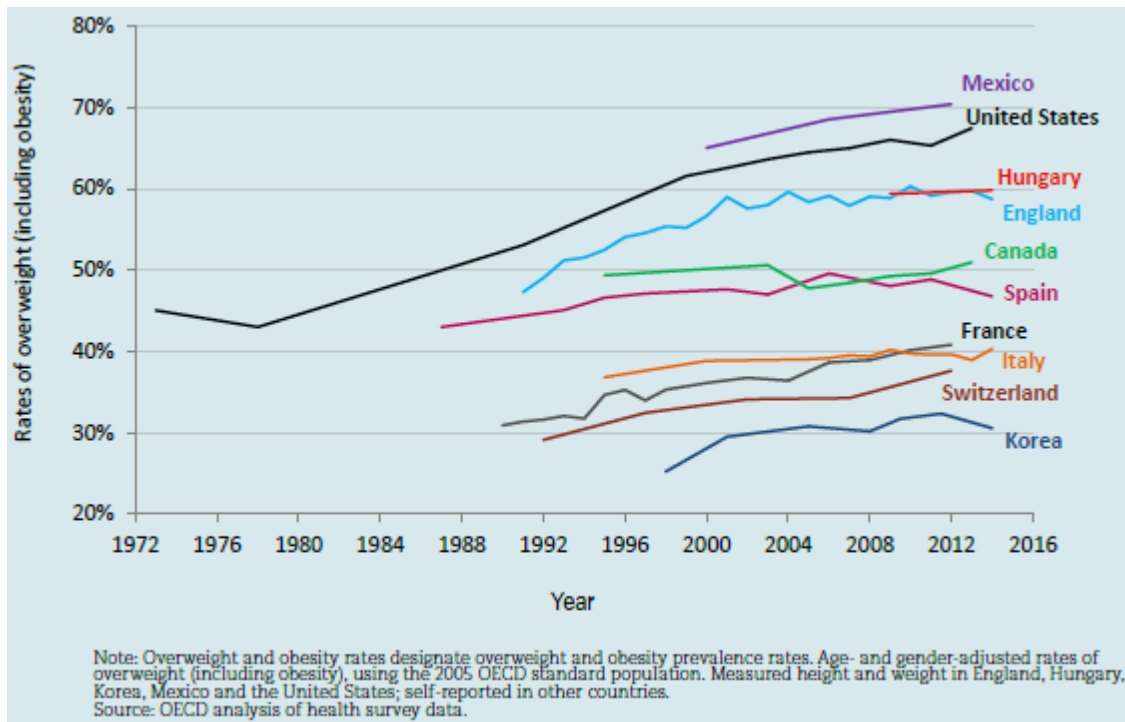


Figure 4.1. Rising overweight (including obesity) rates in adults aged 15-74 years of age.

There are a wide range of companies now involved with the production of plant based alternative protein products. A shortlist of the main players in the market today are below, this is a fast changing world and there are now a wide range of companies and 'start ups' working in this sphere with an ever increasing quantity of funds provided through venture capitalists and other companies seeking to gain a share in this increasing area of food production.

4.1.1 Impossible Foods

www.impossiblefoods.com

Impossible Foods is probably one of the most well-known companies marketing products primarily in the United States of America. They specialise in the production of the Impossible Burger- the 'burger which bleeds' (Plate 4.2). The impossible burger is available in a range of high-end up market restaurants across the USA with the company constantly increasing its supply chain and market profile. The ingredients are 100% plant based; there is currently some conjecture of the heme product used to make the patties appear to be bleeding. This product (soy leghemoglobin) is derived from genetically modified yeast and the American Food and Drug Administration (FDA) have asked for evidence that this GMO heme product is safe for human consumption. At the time of writing in late 2017, the Impossible burger company are still to respond to this request. It is an interesting and emerging issue between the start up companies and government regulation authorities; increasingly the gap between market developments and food safety legislation is growing. There are emerging issues such as that above whereby, it is difficult (and very costly) to provide sufficient evidence that

some ingredients (such as genetically modified soy leghemoglobin) are fit and healthy for human consumption.




Plate 4.2. An image of the Impossible Burger. Image courtesy of Impossible Foods Ltd (www.impossiblefoods.com)


4.1.2 Beyond Meat www.beyondmeat.com


Beyond Meat is also a major player in the meatless meat patty market, its Beyond Meat burger patties are distributed through the Wholefoods supermarket chain and is soon to be available internationally being sold at stores in Hong Kong in 2017. Market expectations are that their distribution networks will expand internationally across 2018. They too are 100% plant based protein ‘meat burgers and also supply mince and sausages to interested consumers (Plate 4.3).

THE BEYOND BURGER® WEIGH-IN



THE BEYOND BURGER®
PLANT-BASED BURGER PATTIES





ANIMAL-BASED BEEF
RAW UNSEASONED 80/20 BEEF

THE BEYOND® BURGER VS ANIMAL-BASED BEEF*

20	PROTEIN (G)	19
25%	IRON (DV)	12%
5	SATURATED FAT (G)	9
0	CHOLESTEROL (MG)	80
22	TOTAL FAT (G)	23
290	CALORIES	287
✓	PLANT-BASED	✗
✓	ANTIBIOTIC-FREE	?
✓	HORMONE-FREE	?
✓	GMO-FREE	?
✓	SOY-FREE	✓
✓	GLUTEN-FREE	✓

*4-OZ BEYOND BURGER RETAIL PATTY *USDA NATIONAL NUTRIENT DATABASE*

Plate 4.3. An example of marketing efforts employed by the Beyond Meat company highlighting health, environmental, and animal welfare differences between the Beyond Burger and traditional beef-based meat patties.

4.1.3 Hampton Creek www.eatjust.com

Hampton Creek is predominantly a supplier of 'eggless egg' based consumer-packaged goods and is most famous for the supply of its eggless mayonnaise and animal product free cookie dough products (Plate 4.4). Founded in 2011 and based in San Francisco, the company distributes products throughout the USA as alternative food service products. The company has recently gone through some board management and quality control issues losing supply contracts with Tesco's over perceived food safety issues but with a new board as at September 2017. They have also entered the synthetic meat sphere area and have recently released press statements commenting that they will enter the market as soon as 2018 with lab based meat products which is considerably sooner than the main player in this field currently- Memphis Meats which plans to have shelf ready products in 2021.



Plate 4.4. The range of products currently supplied by Hampton Creek. Image sourced from www.eatjust.com

4.2 SYNTHETIC MEAT BASED PRODUCTS

Synthetic or cellular agriculture products are products which are cultured, fermented or 'lab grown'. They primarily work in areas such as the production of beef and milk without cows and eggs without chickens. The rise of synthetic meat-based products has largely been in the past 5 years and are increasingly making significant gains in production and efficiency though as this time of writing, cost efficient scalability is still not reached yet for the range of companies and start-ups to date.

There has been a major push into the production of synthetic based meat and milk products recently with the establishment of New Harvest (www.new-harvest.org) which is a not for profit research institute working to accelerate breakthroughs in cellular agriculture and fund companies and start-

ups to assist them to reach market opportunities. The largest issue facing the cultured meat and milk-based industries is scalability. They are in existence for the reasons as described in Section 4 Findings; many consumers across the globe are becoming increasingly concerned with the issues of climate change, animal welfare and human health concerns, there are large pools of investor funds being placed into a range of start-ups to try and rectify this situation (or at least market their products in an attempt to do so). Getting these products out of the lab and into large scale production capacity is currently limited and un-economic but this is expected to be improved with scientific improvements over the next 10-20 years. Taking a quote from the (KPMG, KPMG Agribusiness Agenda- the recipe for action, 2017)- when synthetic carpets were introduced many argued that consumers would never buy a nylon carpet in preference to a wool one. Today less than 5% of carpets sold worldwide are woollen. **Price, quality and ethics** will ultimately drive demand for cultured food products. The rise of synthetic meat products is inevitable, how we as producers of traditional meat and milk products adapt to this paradigm shift in consumer demand and preference will be paramount for our industries to remain relevant and economically sustainable.

A short summary and situation outlook of the major players in synthetic meat and milk-based products are presented below

4.2.1 Memphis Meats

www.memphismeats.com

Based in Sans Francisco, Memphis Meats is one of the earlier companies to be founded with the idea of creating meat from stem cells and manufacture these into useable meat products for use as an alternative to meat from animals (Plate 4.5). They currently can produce products for beef, chicken and duck through the removal of cell tissue from animals and then culturing this in the lab. One of the existing issues with the production of animal free meat is the requirement for foetal bovine serum (serum gathered from foetuses) - obviously this doesn't appear to good to the current consuming market. Currently this is an essential component of the cell culturing technique to produce these products however they are attempting to find alternative products to reduce their exposure to this technique. Another major issue id creating the same texture as steak from an cattle beast. This too, is gradually being rectified through special layering of cell tissue, membranes and fat to create the same eating texture to that of steak for example.



Plate 4.5. The original Memphis Meats Meatball. Image sourced from www.memphismeats.com

4.2.2 Modern Meadows

www.modernmeadow.com

The goal of Modern Meadows is to produce bio-fabricated leather products (Plate 4.6). The way they aim to achieve this is engineering yeast to produce a leather product through the production of collagen thereby by-passing the use of cattle skin products for traditional leather making. The use of traditional fur and skin for fashion products is widely debated with animal welfare being of a high priority. Through the use of advanced cellular culture techniques, Modern Meadows claim to be able to create animal free leather products which satisfies those who claim there are concerns of animal welfare with the use of animals for food and fashion products. They have recently released their first semi-commercial product branded Zoa and aim to release these bio-fabricated leather like products, primarily into the higher end fashion labels for use at premiere fashion events.



Plate 4.6. Animal free leather products as produced by Modern Meadows. Image sourced from <http://www.modernmeadow.com/our-technology/>.

4.2.3 Perfect Day

www.perfectdayfoods.com

Perfect Day is a company with the aim to produce cow free milk and cheese products (Plate 4.7). Its milk product is made by altering sections of the DNA sequence of food-grade yeast such that the microorganisms, once fed with certain nutrients, produce many of the proteins found in milk, including casein, lactoglobulin, and lactalbumin. Perfect Day describes the process as akin to brewing craft beer. This process supposedly gives Perfect Day's product many of the same properties of traditional milk from a cow, like the ability to work in an emulsion and to give foods a softened texture. That means it can be used in much the same way to make dairy-driven foods like mozzarella cheese, baked goods that require milk, yogurt, and milk shakes.



Plate 4.7. An example of Perfect Day animal-free milk products namely their animal free milk and brie cheese. Image sourced from perfectdayfoods.com

4.2.4 Clara Foods

www.clarafoods.com

Clara Foods aims to produce eggless egg products (Plate 4.8). Its main aim is to fulfil traditional kitchen eggs used for baking and meal ingredients such as for the production of pasta, meringues and protein powders- through the production of a substitute product for traditional egg whites. They aim to produce these egg white substitute products through the use of genetically engineered yeasts, to be a producer of these egg white substitute products to other businesses rather than the traditional consumer such they are a B2B company. The main objective is to produce these alternative egg white products as an ingredient in baking and condiment production. At scalability- the objective is to be able to supply these products at a considerably reduced cost in place of production of chickens for egg production and then requiring egg white separation. Production of these products also bypasses consumer-based issues of animal welfare concerns and human health contamination, salmonella issues with traditional egg and chicken production.



Plate 4.8. The Clara foods brand and their marketing styles. Image sourced from www.clarafoods.com

4.3 THE RISE AND RISE OF THE MILLENNIAL CONSUMER

As Millennials (born between 1981-1996); age and their buying power increases, they are and will increasingly be important genre of customer (Plate 4.9).

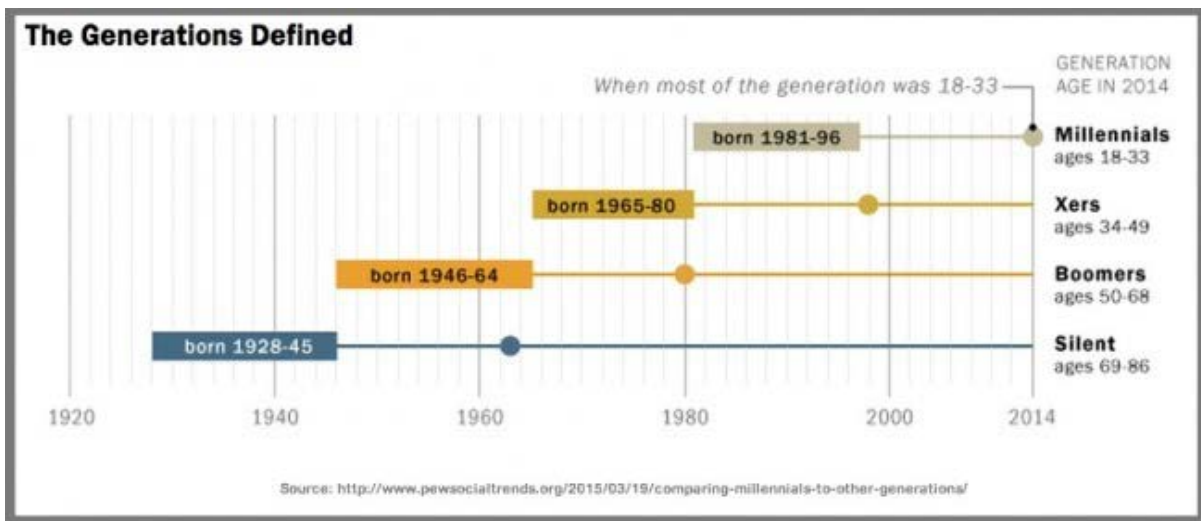


Plate 4.9. A breakdown of the generations. Note that this is missing generation Z born between 1995-2010.

Schawbel (2015) interviewed 1300 millennials and created 10 important characteristics which guide their purchasing decisions

1. They aren't influenced at all by marketing
2. They would rather buy a car than lease a house
3. They review blogs before making a purchase
4. They value authenticity as more important than content
5. Their future inheritance won't change their buying behaviour
6. They want to engage with brands on social media
7. They want to co-create products with companies
8. They are using multiple tech devices
9. They are brand loyal
10. They expect brands to give back to society

As producers of primary and agri-food products, we need to recognise these values and display them with re-engineered marketing campaigns. As noted, that they make widespread use of social media and technology. Increasingly, through the use of advanced marketing campaigns and technology, we can make connections with these consumers; this is an important consideration when targeting millennial consumers. Through the use of virtual and augmented reality- our ability as producers to connect with consumers will be a lot greater and transparent therefore providing peace of mind to the purchaser that the story we tell is authentic and hopefully giving them their confidence to purchase their product of choice. This is an important aspect for the premium product- its story must be thorough and authentic therefore providing sufficient evidence is an essential element to create a successful purchase.

To a degree, with less premium products, super markets and marketing agencies will develop and progress to authenticate the food and products within their store to be meeting the needs and requirements of the consumer. They will evolve and increasingly become somewhat of a gatekeeper; only premium products with in depth evidence of quality assurance around aspects of environmental monitoring, animal welfare considerations and nutritional benefits will be able to be supplied. As a consequence, other retailers selling commodity items will increasingly lose market share.

Millennials and in time the Generation Z's have grown in a fast-changing world of advancing technology, the use of this must also be embraced by producers and marketers to a) wisely utilise \$ for marketing campaigns and b) ensure that the material used hits its target. Traditional use of television advertisements for example will change dramatically as we are currently seeing huge changes in current media companies. The likes of Facebook, Google and Twitter make the majority of their income through social media advertising campaigns and increasingly the use of artificial

intelligence. These can maximise efficiency of reaching the target audience and in turn altering the buying decision making process into our favour.

5 DISCUSSION- 20, 20, 60

The breadth and range of alternative meat and/or protein companies is escalating internationally. With considerable funding streams available and venture capitalists queuing up to invest in these products, the future appears to be bright. The largest issue with the products is scalability and ability of the companies to deliver their products at a level which is

- Able to be sold and distributed in sufficient quantities to the market
- Cost effective to distribute at scale

The role of alternative proteins will dramatically impact the New Zealand animal agriculture production system, currently as these systems grow and are marketed to consumers, their place will take up commodity-based products such as manufacturing beef which will place considerable pressure on the pre-existing bull beef and cull cow industries. Currently the emphasis for these start-up companies are towards the elite market end as the costs of production are high; as scalability improves with better technology adoption, this will change. As both the plant based, and laboratory-based products develop increasing scale, they will become cost competitive with our existing production systems and in a relatively short time, overtake these markets in terms of cost per quantity produced therefore take an increasing market share. This will particularly be the case for the growing demand for protein in eastern nations with rising affluency, much of the increase in demand for quality protein will be met with plant based 'alternative' protein products especially as these systems develop further to match 'pound for pound' in both price and quality with traditional protein sources. It is inevitable that once they become cheaper than traditional animal-based protein sources, it is a race to the bottom and NZ agribusinesses will not be able to compete. As a consequence, New Zealand animal agriculture has to focus its attention towards the production of three niche areas of specialisation because in the longer game, we will not be able to supply meat-based protein at an economic scale to 'feed the masses' as well as meet conditions of environmental, social and animal welfare responsibility.

These areas are divergent in the specialty area but will be an increasing share of consumer preferences and demand across the globe, particularly as millennials grow into the breadwinners. One area will be the production of sustainably ethical raised natural food products. These products will be highly regarded by affluent consumers whom will pay for a premium product consumed intermittently. A product which has an in depth and true story, a story which 'ticks off' areas such as

natural production without or at least with the well documented and limited use of antibiotics, animals raised on pasture with environmental stewardship which is increasingly being marketed and perceived by consumers as a highly regarded quality product ready for the dinner table. For these consumers and as a society, eating food is a social occasion, one which is to be enjoyed; use of these products will be more of a social gathering and quality bonding experience with family and close friends. If we eat three times a day, seven days a week this of course is 21 times per week that we can get our products in front of consumers. High end valued products will be used and targeted towards consumption 4-5 times a week (20%) for those 'special occasions'. The production of these products isn't limited to this but depending on the consumers' willingness to consume these high-end quality products regularly and the specific price points employed for these specific products. To achieve this goal of providing these elite premium products, there is a requirement for multi-party government direction to find and utilise our common voice telling a story of natural protein versus the global norm of intensive animal agriculture production systems. We as an industry must recognise that we create a niche product and inform the consumer with an in depth multi-pronged sustainability story (touch points of animal welfare, human health and environmental stewardship) with data to support and ensure that this message is correct and authentic

The other market (20%), requiring focus on is at the other extreme- the production of what is termed nutraceutical products or medicinal foods. Through ever advancing breakthroughs in science and healthcare, humans are living longer; this in association with a more urbanised and sedentary lifestyle is culminating in high levels of obesity and poor health- we need to eat food which will make us healthier. Foods which are fortified with added ingredients will be essential to have a better life quality at those older ages. Through constantly improving technologies, the ability to provide a diet recommendation to the individual person level is close at hand. Future marketing concepts will be on ensuring wellness and providing foods which provide 100% of a person's requirement (depending on their stage of life and physical demands). Advancing use of AI and DNA technologies mean that researchers will find further evidence of the link between the microbiome effect on human health and wellbeing. The provision of food types to prevent ill-health will become increasingly widely available- you are what you eat will increasingly shape what people eat, either by choice or ultimately as a result of regulation that defines what should be eaten and what food groups should be avoided (KPMG Agribusiness agenda 2016, Volume 2: Foresight to the future). We are now starting to see significant investment in these areas through the production of branded high protein paediatric food groups to elderly consumers in order to improve health, wellbeing and ultimately longevity. Agrifood companies will benefit from these new market opportunities emerging as populations age, however their investment will be required to verify perceived health benefits and

deliver products in appropriately tailored formats (KPMG Agribusiness agenda 2016, Volume 2: Foresight to the future).

This of course leaves 60%- wholesome 'on the go' snack foods which provides a wholesome meal in a single sitting during the 30-minute lunch break or for breakfast on the subway as consumers travel to the office, premiums along these lines can also be obtained through supply of ingredients for cooking family meals etc. Society in its daily life gets busier, as each generation grows up, our lives get busier which culminates in less time for consuming food in the rush of life- easily consumable foods with minimal packaging and can be consumed in one had (driving or taking the bus/subway etc., scrolling social media on your phone) or having them nightly meal provided when you get home cooked and ready to be eaten. Through the provision of easily consumable foods, we will be able to spend less time on the routines of life (eating!) and spend more time performing activities which we enjoy (in the short time available, exercising, taking the dog for a walk). Further iterations of this concept are provided through the likes of My Food Bag (www.myfoodbag.co.nz) whereby consumers get entire ingredients for meal preparation delivered to the door each day (at a premium) and as a result, no need to go get the groceries! We are also seeing iterations of this develop through the likes of Uber Eats or Jess's underground kitchen (www.juk.co.nz) which provide gourmet cooked dinner options for city dwellers- perhaps often urban young professionals. People are increasingly requiring products that fit around their lifestyle and not the other way around (as it traditionally was). With both partners working, there is little time for meal preparation and instead- meal options can be provided in house to allow a young family to spend their time together doing what they want to be doing.

6 CONCLUSION

Change is constant and imminent. We always talk about that change is coming but it's already here. Change isn't coming but instead- the market is constantly evolving. We don't recognise the change until it is too late and we are left on the side-lines wondering what the hell just happened! As a nation focusing our efforts towards premiere markets with a detailed supply chain analysis and a thorough story of aspects of the 'behind the gate' events and activities will result in attainment of a large market share of the premium consumer's wallet. The rise of plant based and synthetic meat supply chains in association with increasing consumer scrutiny and changing market dynamics will result in turbulent times for the commodity markets and will lead to a rapidly deteriorating market share from the traditional supply chains. Through focusing our attention and efforts on a range of areas of the premium markets (which are different to the premium consumer) will allow the traditional producing supply chains to remain relevant and increase profile and profitability to the producer. More detailed and consumer centric marketing campaigns will need to be developed, this in conjunction with in depth recording, advances in technology and improved management systems will allow a better market outreach and ensure a viable pathway for producers through these changing times.

7 ACKNOWLEDGEMENTS

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