

# Broken Food Systems

## Developing a Citizen Centric New Zealand Food Strategy

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# Executive Summary

## A Broken Food System

The global devaluation of food in developed countries due to physical, digital and biological advances has been the catalyst for destruction of both social, cultural and economic systems and New Zealand, in the absence of an ethical humanity centred 'whole food system' risks the same deterioration and consequences, other first world nations are attempting to reverse.

Lack of understanding around the role of food as a connector in every facet of our lives not only diminishes the importance of food production – it further industrialises and negates the responsibilities of the process, which in turn reshapes the *'economic social, cultural and human context in which we live'*.<sup>(1)</sup>

At a time when discourse and a disconnect between those on the land and those in built up areas is at unparalleled levels, questions and negative scrutiny has and will continue to be levelled at the New Zealand farming fraternity - the scapegoats and the legacy of citizens who have been progressively severed from their local food systems.

*New Zealand's dogmatic approach to talking about Agri-food products as commodities, instead of food in a socio-cultural context emphasizes the lack of connection between the country's food production and culture, and makes it vulnerable, as noted by Berno.*<sup>(2)</sup>

Although this detachment continues to widen, globally, as evidenced by the author's studies, there is a growing resonance from citizens <sup>(3)</sup> (albeit sub-consciously) of the social, symbolic and economic role that food has in their lives, leading many Governments to consider the opportunities this developing conscience might offer.

Other drivers towards a 'whole food system' approach include burgeoning nutritional health issues, such as Scotland is experiencing, with two thirds of adults considered obese<sup>(4)</sup>, due to food insecurity and the increase in low cost nutrient poor processed foods.

Although Scotland's first (and the United Kingdom's first strategic food policy) National Food and Drink Policy, *Recipe for Success* <sup>(5)</sup>, was led by the economic imperative of food and drink to the economy, the paradox between producing an abundance of fresh natural produce and having one of the poorest diet-related health records in the developed world led to a whole food human rights holistic system approach to food policy.

*Becoming a Good Food Nation* (Scotland's updated strategy) encompasses a wider strategy and legislation is currently being consulted and debated upon by the Scottish Government and citizens. It, like Canada and France, articulates new and visionary aspirations around food that are human rights based and is sensitive to the relationships between food, health, the environment and social justice.

At its core, the *Good Food Nation Bill* has been designed to create a framework for a democratic food system, geared towards the wellbeing of the Scottish population and the protection of the environment.

Like New Zealand if it were to adopt a food strategy, Scotland must balance the tension between reducing environmental impacts and increasing economic growth and encouraging local food growing initiatives while encouraging exports and developing export markets. However, the Government and advocates for the *Good Food Nation Bill* are confident they can reach desirable outcomes for all parties that ensure a united, prosperous and economically sustainable Scotland.

*Indeed, adopting a 'whole food approach' by definition, means social and economic aims need not be mutually exclusive just as the rights and economic viability of food producers need not be sacrificed.*

New Zealand is at a similar crossroads with its Commonwealth kin. Despite the tyranny of distance and its vast necessitous global trade relationships it cannot be isolated from the effects of the Fourth Industrial Revolution (the fusion of industrial, biological and digital technologies).

Automation, urbanisation and the continuing de-valuation of food, including disruption to traditional 'foodways' (the cultural, social, and economic practices relating to the production and consumption of food) will cause fundamental transformation across New Zealand that will require urgent collective action.

Food connects us all. Described as the 'intimate commodity' (Anthony Winsor, 1993), food and the historical culture in which it touches every part of our lives is threatened world-wide under the white-hot pace and breadth of technological change.

Today's food systems are creating obese, malnourished citizens who are disconnected with their indigenous food culture - particularly in Western nations, including New Zealand.

How then do we create a citizen centric social food system that can be respectful to cultural, economic and environment objectives and with whom does that responsibility lie?

This project, enabled by a Nuffield New Zealand Agricultural Scholarship, is based upon a global twelve-month research tour that encompassed six continents, fifteen countries and extensive literature research.

The author viewed broken and unbroken food systems, developed and un-developed countries and compared and contrasted commonalities and dissimilarities that could be utilised to New Zealand's advantage.

After talking to Government departments, Western Food Think Tanks and those that are passionate about food systems and food culture, this report centres on developing a world leading, marketable New Zealand Food Strategy that links and ensures prosperity for all its citizens.

**He aha te mea nui o te ao**

What is the most important thing in the world?

**He tangata, he tangata, he tangata**

It is the people, it is the people, it is the people  
Maori proverb



A recent study by PwC(6) projects a quarter of New Zealand jobs could be lost to automation by 2035.

The report also indicates job losses could be as high as 30 per cent among skilled agricultural and fishery workers and over 70 per cent among machine operators and assemblers. Both are key components of the food sector, particularly in New Zealand's regional economies.

For Southland, a principally Agri-food focused region, where 12 per cent of the population are employed in dairy, sheep and beef farming and 15.3 per cent are employed in the manufacturing sector(7), this could be ruinous without a whole food system, long term approach, from Central, Regional and Local governments and the wider food community.

The ongoing effects of technology are considered 'wicked problems' with countries like the United States devoting much time and energy on searching for a solution. However, without a 'whole food system' approach, it remains perplexing. There is no quick fix, leading US Democratic Senator Chris Coons to admit there is no easy answer to the social issues automation and technology advancement will create. In a speech to international Nuffield Agricultural Scholars in Washington DC in 2017, he pondered the economic threat posed to the United States by automation.

Senator Coons believed automation would create immense societal change including less employment hours available for citizens. While he applauded the idea of people spending more time with their families he also voiced concerns on how Americans would fund their lifestyles. He and many other politicians world-wide were grappling with how to tax the robots - the inheritance on those in governance that have been guilty of short term compartmentalised thinking.

*If technology is to 'empower citizens' rather than 'determine' their fate(8), New Zealand must educate, prepare and consider the way that new technologies will connect with one another within the domestic food system and how that will influence citizens in both subtle and obvious ways.*

Heavily reliant on the Agri-food industry for economic prosperity, with 70 per cent of total goods exports and 11 per cent of national employment coming from the sector (dairy farming is the largest contributor at 27 per cent total goods exports), the impending technological revolution in food production that is taking place in scientific laboratories and citizens homes could pose significant threats to the New Zealand livestock industry.

That threat is re-inforced by an increasing global movement towards flexitarian or semi-vegetarian diets (9) and this has been evidenced in the United Kingdom by a 360 per cent increase in citizens that classify themselves as vegetarians over the past decade.

There is no better example of this growth than British based company Quorn. Founded in 1985, Quorn takes a nutritious fungus from the soil and ferments it to produce a dough called Mycoprotein. High in protein, fibre and low in saturated fat, it has been a staple of vegetarian diets globally, including New Zealand, but the rise in flexitarian diets and the corresponding move away from meat consumption has seen the company record its strongest economic results in 2017 with a 16 per cent increase in revenue.

This is not an anomaly with research undertaken by Allied Market Research(10) in 2017 showing the global meat substitute market is expected to garner a revenue of \$5.2US billion by 2020 with a compound annual growth rate of 8.4 per cent between 2015 and 2020.

The report also states that per-capita consumption of meat has declined, particularly in developed countries, and that has led to food products high in nutritional value that have a similar taste and texture to meat, gaining prominence among consumers.

Parallel to the societal change to our food system from technological advances, is the decline in New Zealanders health with the third highest prevalence of obesity (one in five children and one in three adults according to Statistics New Zealand) among OECD countries, with one in five households facing food insecurity and 8000 citizens dying each year due to nutrition related problems.

The contradiction of food insecurity and obesity indicates the quality of food consumed by New Zealanders is low and reflects the 'degradation of the food system'.(11)

Consideration of a 'whole food system' approach must also include Māori - the indigenous people of New Zealand for whom Kai (food) is central to their culture. Like the indigenous people of Canada, the Māori lost their traditional sources of food, gathering and knowledge of food preparation – the residual effects of colonisation and industrialisation.

Kai is connected to every part of Māori culture and is an indicator of mana (respect), manākitanga (hospitality), Kaitiakitanga (environmental care) and whanaungatanga (social interaction) (11).

Canada's efforts to develop a 'whole food system' has incorporated the food insecurity of the indigenous people, in recognition of the effect lack of access to traditional foods has had on their culture with widespread poverty, hunger and lack of affordable housing common.

Current research(12) shows just 58.1 per cent of Māori consume an adequate amount of fruit and vegetables in their daily food intake.

*Statistics also show that meat and dairy produce are not considered to be essential in indigenous diets – re-inforcing that the New Zealand food system in its current form is fractured.*

Finally, land pressure and the continuing intensification of farming systems in New Zealand (particularly dairying) have put pressure on natural resources (13). However, there is little recognition from the New Zealand public of their role as citizens in maintaining a sustainable environment.

Up until the time of writing this report, measures such as the Freshwater Rescue Plan(14) that was signed by (16) organisations and experts and called for a decrease in dairy cow numbers, have largely been ignored by citizens, with the dangerous expectation that all environmental outcomes fall on food producers' shoulders. This doesn't take into account the efforts undertaken by New Zealand's food producers to preserve their natural capital.

Following the United Kingdom's decision to leave the European Union, the British Government is re-shaping its food policy and appears to be moving away from an economic approach to a 'whole food system' policy and are accordingly consulting widely to incorporate a holistic long-term view of the future.

Secretary of State Michael Gove, has signalled environmental sustainability will be a touchstone of the new food policy and farmers will be rewarded for their 'initiative' and 'creativity'. But more importantly he has signalled that it is not their role alone to preserve the land for future generations, but instead up to all citizens, who he says, as taxpayers, must invest. He also firmly believes farmers should be supported by the public (15).

To do that, he, and the British Government are consulting widely and engaging all citizens in the process in an attempt to consider a 'whole food system'. This approach dissipates the singular approach of the past and amalgamates citizens and farmers alike to their environment while re-forging lost connections.

In conclusion, New Zealand's food system, like many developing countries, is broken. It cannot sustain its' citizens health, social and cultural or economic status (be it the food processor or the food citizen) in its current form unless it adopts a 'whole systems approach'.

This means developing a human centred food strategy that requires an immense breadth of consultation with many individuals, including organisations, across private and public, food industry boards and third tier organisations such as retailers, Health Boards and all tiers of Government and local communities.

*Current calls by the Minister for Agriculture, to form a 'Primary Production Council'16 to facilitate an agri-business New Zealand strategy is too narrow in its scope and engenders the compartmentalisation of the past where approaches to food opportunities and issues have largely been made in isolation, practically based and short term rather than strategic – limiting their impact.*

A shared aspirational national collaborative vision for food and a 'Team New Zealand' approach would position us strongly towards the future, and prepare for the pace of change occurring. Together, New Zealand, could achieve monumental environmental, social and economic goals, and extend opportunities to further sustain and grow future market opportunities for the nation's food producers, while nourishing its most important asset – its citizens.

## Recommendations

1. To ensure the New Zealand food sector achieves its potential as a key economic, environmental, social and cultural asset in the face of rapid and accelerating digital and technological change, it must develop a National Food Strategy that is citizen centred.

2. To capitalise on the work being done in many Commonwealth countries, the New Zealand Government should work to form a collaborative Commonwealth Summit on the issue of food policy and strategies and utilise it to leverage and learn. Canada, Scotland, Wales and England, in particular, are doing aspirational and visionary work in these areas, with many in these Governments expressing a willingness to share and to work together to ensure a common good. This partnership could also lead on to further beneficial trade and food relationships.

3. Current calls by the Minister for Agriculture, to form a 'Primary Production Council' to facilitate an Agri-business New Zealand strategy is too narrow in its scope. Any discussion on a future strategy for food must be facilitated among the wider food network and New Zealand citizens. To that end a consultation process with the public should be considered, as should nation-wide meetings with all groups involved in the food chain – be it environmental, health, Agri-food industry and business, Local and Central Government or/and community.

4. A Food Commission needs to be created to facilitate a public consultation process on food policy and should act as the bridge between citizens and a New Zealand Food Council.

5. A New Zealand Food Council must be established, with carefully selected representatives of all connectors to the food community including (but not limiting to) Central, Local and Regional Government, agricultural bodies and farmer representatives, manufacturers, businesses retailers, researchers, consumers, health and education bodies, indigenous and community groups. The Council would initiate the basis of the New Zealand Food Strategy policy, based on the findings of the New Zealand Food Commission, following an extensive consultation process and the findings from a Commonwealth Summit on the issue. It would also be responsible for establishing a robust evaluation framework using an extensive variety of specific indicators for measuring success including policy audits.

6. 'Non-processed' healthy foods will be a key mega-trend of the future that is supported by Governments that are struggling with burgeoning health bills related to nutrient deficient processed diets. New Zealand must capitalise on this and begin to focus the message around our food exports and develop a 'Team New Zealand' story that emphasizes the healthy nutritious produce we grow. This could provide a lucrative world-leading marketing strategy that ensures our Agri-food sector's survival and prosperity.

7. The valuable connection that schools can provide must be considered as a cultural bridge in New Zealand. A Farm to School Food programme could provide economic benefits and a new market to farmers via a school lunch programme while teaching food literacy and health to the younger generation. It would in turn engender goodwill between the food producer and the citizen.

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## So What is a Food Strategy?

“A Food Strategy in its simplest form is a long-term policy or framework that helps build a socially conscious, responsible, sustainable and economic Agri-food sector that contributes to, and enables the health of, all New Zealanders while recognising and respecting the rights, voice and input of all citizens.” - **Nadine Porter, 2018**

"For coalitions and organizations striving to advance health equity, food can be a unifier, and a powerful way to make change." - **Vayong Moua – Centre for Prevention at Blue Cross and Blue Shield of Minnesota**

*“Every country and region requires a process for gathering and synthesising broad citizen input into research priorities. Advisory groups dominated by industry voices are not adequate to this task. The ‘people’s food policy’ plans that many countries have developed (e.g. Canada, Australia) give rise to immediate research needs for how the will of the people can be implemented most effectively, at the lowest cost, whilst providing good jobs to citizens.”*

– *Molly D Anderson, William R Kenan, Professors of Food Studies, Middlebury College, Vermont, USA*

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# Let's Talk Turkey

## Food citizens versus consumers

Food strategies and food policies are a relatively new concept to countries, spawned by the emerging social, economic and cultural changes occurring due to the Fourth Industrial Revolution and the devaluation of food over the past century.

Previously Governments have tended to treat food issues in a compartmentalised manner. Burlingame and Wham(17) use sustainability in New Zealand as an example of this isolationist method of dealing with problems. They acknowledge different sectors within the food system are dealing with sustainability issues independently, but say sustainable solutions require actions, policies and programmes that are multi-sectoral and trans disciplinary.

***"When addressed coherently, human nutrition becomes the champion of sustainable food systems, climate change mitigation and biodiversity conservation through sustainable use, and the agricultural sector serves as an equal partner with health in halting the epidemics of obesity and diet-related chronic diseases"***

The beginnings of any multi-sectoral consultations in relation to building an aspirational New Zealand Food Strategy must have a collectively agreed terminology between all parties. Central to that must be the clear and swift shift towards a 'food citizen' mindset rather than the 'consumer' mindset New Zealanders are well versed in.

The Food Ethics Council in London argues effectively that our tunnelled focus on 'what the consumer wants' has impeded progress on many food issues (18). Trustee Jon Alexander says 'we allow sugar content to remain high, compromise on wage levels and environmental impact for price, focus our best innovation brains narrowly on convenience, all because that's what the consumer wants. Or so we are told.'

The Council believe people want to shape the societies they live in and having a purpose that takes them beyond themselves is a powerful and proven driver of mental and physical wellbeing. They also believe, people, by nature are collaborative and want to work together.

The Food Ethics Council consider us as being citizens. This is a significant difference, because once we consider people as simply 'consumers', we tend to assume that people are selfish, non-collaborative and their power to shape the food system is limited to choosing between food products.

Canada's consultation process around a Food Strategy highlighted that citizens want to have a say in Food Policy and proved how inclusion and a 'citizen' mindset can empower and involve all sectors of the network.

***"So, what if the value-action gap could be explained not as evidence that people don't care, but that the story of the consumer is so powerfully present when people are shopping that it does shape their behaviour, drawing them away from deeper values they do truly hold? What if we reimagined the food system from a bigger idea of who we are and what we're capable of? What if we thought of ourselves and each other as citizens...not consumers. Everything would change. Power could be reclaimed at all points in the system. Retailers would not be reduced to consumers of supply chains, squeezing producers to meet consumer demand, but citizens in supply systems able to act with purpose and take people with them. Producers would not be closed off, disconnected from the public, they would invite and involve, and citizens would respond with energy, ideas and resources. Government would neither absent itself nor seek to control, but enable richer conversations, creating the conditions, for and equitable***

### The disease of compartmentalisation

**How we were sidelined from participant to consumer and how that affects Agri-food producers**

Over time the social system of our existence has naturally developed into one in which skills have become 'specialised'. The responsibilities of society including agriculture have been 'compartmentalised' and the tasks required given over to the highest 'skilled' and best prepared people.

***"Even worse, a system of socialisation requires the abdication to specialist of various competencies and responsibilities that were once personal and universal. Thus, the average...American citizen now consigns the problem of food production to agriculturalists and agri-businessmen, the problems of health to doctors and sanitation experts, the problems of education to school teachers and educators, the problems of conservation to conservationists, and so on. " Wendell Berry – The Unsettling of America, 1996***

This disease has also spread through Governments where many policies are developed in isolation, without regard for their ongoing effects and can be argued as being a mental orchestrator of broken food systems in the Western world.

It has also led to citizens being demoted in the food chain to consumers as noted by David Asher, a globally renown natural cheesemaker from Canadian.

"We are no longer participants in our culture but are relegated to consumers."

And those that are producing our food are also caught up in this compartmentalisation as highlighted spectacularly by the Labour Government's campaign promise of a 'water tax' during the 2017 election campaign.

The election promise would have seriously disadvantaged Canterbury irrigated farmers and was unclear in its intent and direction. After much discourse, the Labour Government stepped back from the policy but seemed unaware of the damage such a policy could cause. This 'compartmentalisation' of an issue can be overcome by forming a New Zealand Food Strategy that takes into account every citizen's viewpoint.

Given just one year by the Federal Government to bring a national food strategy together, Agriculture and Agri-Food Canada (AAFC) have vested importance in Canadians as food citizens and have consulted widely.

A national survey of citizens around a bill policy framework garnered 40 000 responses. The 74 per cent response rate for the survey clearly showed that citizens believe they have a role in developing and co-authoring food policy.

The Canadians also held a Food Policy Summit (the author of this report is suggesting New Zealand initiates and organises a Commonwealth Food Summit) and six face to face meetings across the country. Federal MPs have also held meetings with constituents and the AAFC has also undertaken extensive work with the four-main national Indigenous organisations.

The level of interest and collaboration from the entire food system ensures the Canadian Food Policy will become a reality. It will share the aspiration and issues of the entire food chain and could become a world leading visionary policy that address current and future food issues.

In conclusion, if New Zealand is to sit at the table together, to develop a Food Strategy we must first understand the difference between a 'food citizen' and a 'consumer' and develop a mindset geared to work on and for that citizen, in a spirit of collaboration.

## Case Study

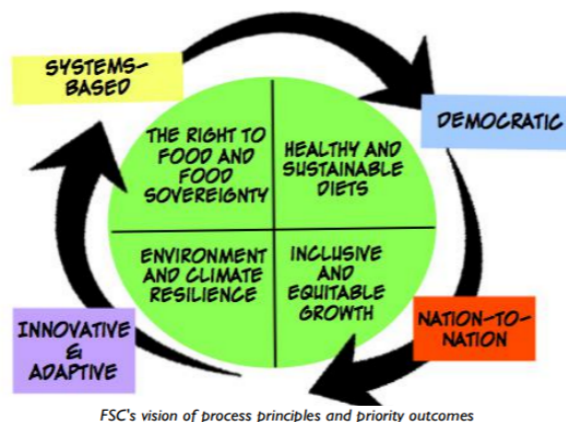
# Canada's Food Policy

## Visionary but difficult to implement due to governance structure

### Principles and Priorities of a National Food Policy

Over the coming year, there will be many opportunities for discussion, dialogue and consensus-building among various stakeholders, including government, business and civil society, to elaborate a national food policy. As we begin these conversations, Food Secure Canada has identified key **process principles** and **policy priorities**, drawn from the People's Food Policy Project (2011) and the Eat Think Vote campaign (2015) and presented as they relate to the government's stated priority pillars of health, food security, environment and sustainable growth.

Building a comprehensive and effective national food policy requires a consideration of both **process principles** and **policy priorities**: *What do we want to achieve and how can we get there?* Together they provide a path to building a healthy, just and sustainable food system that contributes to the Canadian economy and societal well-being.



Credit: Food Secure Canada, Discussion Paper May 2017

Led initially by the Agricultural sector, the road to a Canadian Food Strategy began with increasing unease over Canadian agricultural programmes and their five-year cycles. While the food programmes provided some stability to the nation's farmers, they also created much uncertainty as expiry dates loomed.

Believing that farmers needed a long-term vision that connected with food policy, but was not dependent on electoral cycles, led to the development of a human centred world-leading Food Strategy.

*Key to the Canadian Agriculture sector was the need to get policy makers to recognise how innovation can be stifled by seemingly unrelated policy or regulatory changes and how they can have a significant impact on the Agri-food sector.*

The Federal Government have now established four key pillars under which a framework is being devised (19).

### Pillar One: Increasing access to affordable food – a visionary human rights approach:

This acknowledges that not all Canadians have sufficient access to affordable, nutritious and safe food (food security) and that more needs to be done in vulnerable parts of the population including indigenous peoples, those living in remote communities and children and adults living in poverty.

This pillar is human right centred because of the concept of guaranteed access to food. The approach, however, is unpopular in some areas of Canada with primary producers who are 'future market' advocates.

Definitely the most challenging of the four pillars, food access can prove difficult to explain, as it is fundamentally a deeper society challenge that has to be met.

Attempts at food policies by various Governments in the past have not typically addressed citizens right to access good nutritious food, and this approach by Canada is seen as evolutionary.



## **Pillar Two: Improving health and food safety – concentrating on the health of the people:**

Increasing Canadian's ability to make healthy and safe food choices has irritated some farmers who believe they are already producing nutritious and safe food. However, this pillar is more about improving the health of Canadian citizens while lowering health costs. By 2025 it is projected that 34 per cent of adult Canadians will be obese at a cost of over \$27 billion US per year (20).

Malnourished patients in Canadian hospitals are forecast to be costing an extra \$2000 Canadian to treat at a cost of \$2 (CAN) billion per year<sup>21</sup>.

The strategy aims to improve everyday Canadian diets, and reduce the incidents of chronic diet related diseases.

While AAFC is charged with producing the Food Strategy it has used 'relational leadership' theory effectively to engage with a number of Government Departments – not least of which is Health Canada where they have agreed to complement current initiatives as well as advance them.

## **Pillar Three: Conserving Canada soil, water and air: - preserving the natural assets of a nation:**

Using environmentally sustainable practices to ensure Canadians have a long-term reliable and abundant supply of food has also been contentious among some sectors of the agricultural grass roots community.

Primary producers have had difficulty supporting the concept of 'environmental sustainability' simply because they believe they are already sustainable.

Terminology has been key to consulting with farmers on this pillar and talking to them about protecting their 'natural capital' garners a more favourable response. There has been a resonance through the consultation process that farmers naturally want to preserve their asset and they do not want to degrade it.

Overall the pillar covers the way food is produced, processed, distributed and consumed, greenhouse gas emissions, soil degradation, water quality and availability and wildlife loss.

There is a strong emphasis on reducing waste in the food chain particularly because Canada has one of the highest rates in the world of food waste at 40 per cent or \$31 CAN billion each year (22). Almost half of that waste occurs in the family home, which AAFC is seeking to address using a number of tools including behavioural economics and nudge theory (23).

## **Pillar Four: Growing more high-quality food – the economic blueprint:**

While the aim of this pillar is to ensure Canadian farmers and food processors are able to adapt to changing conditions, while providing more safe and healthy food to consumers both domestically and internationally, it also has to be balanced with a longer-term strategy that incorporates the effect of targets set today.

An example of the complexity of this in many countries is export targets set by Governments. Canada wants to increase annual Agri-food exports to \$75 billion CAN by 2025 but will need significant gains in productivity.

Growth in added value-added production and innovation in an array of industries including academic fields and Government departments will be required. Add to that the environmental sustainability targets of Pillar Three and questions around what an increase in production could mean in a multi-faceted food policy that doesn't treat issues in isolation, and you begin to understand the need for a comprehensive food strategy.

## **So, what can New Zealand learn from Canada?**

### **Conclusions:**

**1. Industry led the initial discussions and draft strategy papers around the development of a Food Strategy. This approach was backed by the Director General for AAFC, Beth MacNeil, who believes any Food Strategy must be led by industry BUT Government enabled.**

**2. Having the first pillar of the Food Strategy centred around human rights and increasing access to affordable food, is citizen focused rather than consumer focused, and has allowed Canada to seat everyone at the table and unite under common goals.**

**3. The AAFC have consulted widely with 16 Government Departments and agencies, the Agri-food industry, wider community groups, indigenous people and Canadian citizens, using a variety of methods including a summit, face to face meetings and a survey. This has opened up positive and ongoing dialogue between sectors of the food community that have not previously engaged.**

**4. New Zealand is in a fortunate position in its governance structure, unlike the Canadians, who can produce a national food strategy at a Federal level but cannot make provinces implement findings.**

**5. A citizen collaborative approach during consultation can overcome electoral cycles. If enough support is generated through the process, it can be difficult for future Governments to abolish the strategy, as has happened in the past in Australia and England. However, the policy must be innovative enough to generate excitement and enthusiasm for its continued development and implementation.**



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## The Case for New Zealand Agriculture - Opportunities Realised

*With food and diets becoming a priority focus for future thinking Governments, the New Zealand agricultural industry could position itself favourably to take advantage of the new consciousness around healthy food.*

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## Opportunities realised

Mexico was a relatively healthy nation (as compared to Western counterparts) prior to entering the North America Free Trade Agreement (NAFTA) with the United States and Canada. In 1980 seven per cent of Mexicans were obese – but that figure tripled to 20 per cent by 2016 with diabetes now Mexico's top killer.

And the culprit has been signalled out as the United States, who prior to NAFTA were exporting \$5 million US in high-fructose corn syrup to Mexico. In 2016 that figure had jumped to \$345 million, corresponding with a dramatic rise in obesity and diet related illnesses.

Other countries have mirrored the Mexico decline with one research paper showing free trade is among the key factors to have accelerated the spread of low-nutrient, highly processed foods from the West (24).

As these dietary effects begin to cause significant strain on health systems around the world, and impact upon society, many Governments are looking at ways of combatting the problems of cheap processed nutrient deficient foods.

In the United States, some States have introduced sugar taxes as the first wave of defence. Berkeley in California introduced a 10 per cent tax and received a 10 per cent drop in consumption. However, Philadelphia remains sceptical after their attempts to apply a targeted neighbourhood sugar tax fell flat due to citizens travelling outside an area to buy soda drinks.

Others are grappling with food insecurity and food deserts inside cities. In Minnesota, a Food Charter was developed via a broad-based public process among diverse communities, including tribal nations, new immigrant farmers, food workers, urban growers, rural seniors, individuals with mobility issues and limited resource families. The Charter provides a roadmap for creating access to healthy, affordable and safe food for all the State's residents.

In Delaware – a State rich in food land, industry and resources and a proud agricultural history – the State Government has developed a Food Strategy to combat the 10 per cent of residents who are food insecure and more than two-thirds of adults that are obese.

*With food and diets becoming a priority focus for future thinking Governments, the New Zealand agricultural industry could position itself favourably to take advantage of the new consciousness around healthy food.*

Although much attention has focused on alternative proteins versus meat in food health discussions and marketing of late, and within New Zealand there has been much debate on how to sell our brand overseas, particularly in the livestock sector (25), it is this author's contention that a new lucrative trend will begin to emerge – one led and enshrined by Governments seeking to put their citizens' health first.

In the near future, the term 'non-processed' in relation to food could well be conscious in every citizen's mind, as Governments seek to educate and eradicate around the dangers of highly processed nutrient deficient foods (26). For those nations trading 'natural' non-processed food products there looks likely to be a competitive advantage.

While much has been debated around the role of the New Zealand 'provenance' story in overseas marketing, 'healthy' and 'natural' is the consumer's emerging mega trend world-wide.

In the TFP 2017-18 Food and Beverage mega-trend report (27) health and wellness featured at the top of consumer trends. UK supermarket retail giant Waitrose and other significant meat and vegetable suppliers into that market that the author interviewed have supported this conclusion.

The report found consumers were much more concerned with the nutritional content of their food and drink and are using smartphone technology, to establish the most nutrient dense foods on offer. A strong preference for all things natural was continuing to emerge, according to report findings, with consumers wanting to 'eat in line with nature, and eat less products that have less intervention and less refinement'.

Waitrose believes 'food as medicine' is one of the most significant emerging trends and is accordingly developing chicken with high levels of Omega 3 (one in three children in the UK are deficient). The retailer is also investigating enriching pork with Vitamin D – both are clear signals of market direction.

The growth of the health and wellbeing food market is also reflected in the rise of diet conscious bloggers. In the United Kingdom, online fitness and diet guru Joe Wicks (28) is an internet and social media phenomenon.

Under the name The Body Coach, Wicks accumulated 1.3 million followers on Instagram from a zero base in just two years, and now has several cookbooks and a television series in the offering. Wicks espouses 'clean eating', and his appeal was responsible for a large increase in turkey meat sales during 2017, according to Waitrose.

Turkey had previously been a seasonal meat bought mainly for the Christmas lunch but such was Wick's influence, the low-fat protein became hugely popular out of season, due to recipes he was promoting as part of his diet plan.

An emerging dis-satisfaction with nutrient deficient foods is also having a strong impact on fast food convenience chains, with McDonalds (often the public face of fast food issues) continually moving towards a healthier menu. It recently announced it will be pulling cheeseburgers and reducing the fries portion in Happy Meals for children.

The company has vowed that more than half of the Happy Meals sold in its 37 000 plus locations worldwide will be under 600 calories by 2022.

McDonald's and other fast food chains are under threat by health-conscious consumers and their Governments. In the United Kingdom McDonald's have placed great emphasis on a transparent clean and healthy supply chain for their animal protein offerings. This has also been in direct response to consumer demand and emerging trends.

Fast food is often tied to the word 'processed' and this again may lead to a future opportunity for New Zealand's red meat as a slow cooking joint may be perceived as more 'natural' than the plethora of convenient packaged options available now.

However this will require a change in terminology. Understanding that 'processed' or 'processing' has a perception of being a synthetic food process that alters the raw product will mean that the agri-industry should shift away from talking about 'meat processing' or 'meat processors' and instead consider new terminology that does not negatively impact consumer perceptions.

Currently, there is no front runner in this 'non-processed' market. Ireland through its Origin Green sustainability programme is the closest to realising the brand value of marketing a natural product and they have proven steps in that direction can deliver economic growth. Since the inception of Origin Green in 2010, Irish Food and Drink Exports have grown by over 41 per cent (30).

However, the full potential of a New Zealand Food Strategy led 'Team NZ' approach that showcased whole food system human centred thinking, alongside a futuristic messaging and communication strategy that promoted our non-processed raw food products, could provide a sustainable long-term viability to our food producers.

A New Zealand Food Strategy, through collaboration, could deliver an even bigger domestic prize to the nation's food producers.

Despite a recent Ministry of Agriculture report (31) that concluded the views of rural and urban New Zealanders are similar across key topics in the primary sector including water quality and expansion through value-add, there is a much-reported dis-connection between urban citizens and the food production process. This is a growing trend world-wide.

A 2016 ASDA survey (32) of children in the United Kingdom, revealed how far the knowledge gap is between those that produce our food and those that consume it, with 41 per cent not knowing that eggs came from chicken, and 15 per cent of children believing cucumbers are grown on trees. One in 20 children believed avocados grew on trees and nearly a quarter of those surveyed believed turkey, chicken wings and sirloin steak come from a pig.

*A lack of knowledge about the reality of food production creates ill-informed and uneducated commentary – often expressed through the media.*

Animal welfare campaigners, such as SAFE, have often run campaigns against farming industries that have been emotionally charged and divisive. Without the traditional links, back to farms that New Zealanders had in the past, there is very little in the way to educate them of the actual truth.

This lack of understanding, coupled with a lack of knowledge around food preparation and nutrition is part of a broken food system that many Governments and Agri-industries have realised, must be mended.

Many strategies rely on education as the main tool to overcome lack of food literacy but in Canada and in Delaware the process of compiling a food policy has also led to a long-term collaboration of all parties in the food chain that has proved both beneficial to food growers, processors and retailers and those that would seek to keep them in check.

Delaware State is an agricultural state but is divided between the vast poultry industry downstate and the upstate consumers where population density is greatest. There is almost no connection between the two areas.

Co-ordinators of their food strategy understood it was vital to have the 'right people at the table' when they called three meetings to discuss common food issues and those people had to thought leaders within their organisations. That did not necessarily mean a CEO or President of a company was present at the table. They also made sure they included representatives of different races, genders, non-profit child advocates and respected industry voices. Political representatives were not allowed in any of those discussions.

Although complex at the beginning, due to differing terminology on food, all in the room agreed on the major issues (a similar outcome to the Ministry for Agriculture survey in New Zealand) and are bridging the divide.

In Scotland, they have appointed a National Chef (former UK Masterchef winner Gary Maclean) as that bridge. His job includes advocating for the use of locally sourced healthy sustainable and affordable food and educating youth on cooking meals from raw ingredients. Much of his work will centre around educating children at school – like many US State strategies, where school lunch programmes are not only providing another market for food producers but also a vital link where food literacy can be developed.

It's clear that collaborating together to form a food strategy garners goodwill and a 'team' concept. Food producers and all factions of the food community want the same outcomes – healthy affordable food that provides economic stimulus to New Zealand. Working together addresses the disconnect and empowers every part of the food chain.

## **Benefits a New Zealand Food Strategy could deliver to our food producers:**

### **Re-directed Tax:**

- A New Zealand Food Strategy would potentially halt the burgeoning health budgets needed by the Government to deal with increasing food related illnesses. Understanding the benefit of a nutritional diet and encouraging citizens to eat healthier diets could decrease health budgets, leaving more money available to support Research and Development in the Agri-Food sector

### **Removal of short-sighted policy making:**

- Labour's election premise of a 'water tax' on agricultural users lacked long term foresight or understanding of how such a policy could disproportionately and detrimentally effect food producers. Under a NZ Food Strategy all parts of the food chain would be present at the table to discuss the issue and to determine a fair policy for all citizens

### **Reconnecting our disconnected:**

- Countries like Canada and Scotland who have some semblance of a food policy and who have engaged and communicated with citizens in an ongoing consultation process, appear, through empowerment to have engendered in many an affection, loyalty and pride in their food producers. With many New Zealanders lacking any connection to food producers or knowledge of how food is produced, there remains a vacuum in which mis-information and distrust can ferment and grow. A NZ Food Strategy gives everyone a voice and empowers citizens to belong once again to the food production process. This could lead to a revival of affection and a support at the highest levels for our producers

### **A farm gate dollar value in branding New Zealand as a country where food producers put citizens first and where 'natural' foods are what we export:**

- Imagine proudly taking our healthy 'unprocessed' product overseas and selling the story of our Team New Zealand Food Strategy that centres citizens at the heart of what we do. This could lead to higher returns and a better position in Western markets where Governments will have to act to curb growing diet related illnesses. New Zealand is remarkably well placed to lead and win in this space.



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## Conclusions

1. A New Zealand Food Strategy could showcase our values to the world at a time when citizens are demanding a human centred approach to food production. As Governments seek to rectify growing diet related diseases among their citizens, countries that export healthy clean food could be in a position to drive higher returns back to producers.
  2. 'Non-processed food' could become the next mega-trend that is supported by Governments' worldwide, due to research that links low cost highly processed food to growing health problems. Rather than focusing on the damage 'alternative protein' and 'flexitarianism' is creating, New Zealand has a chance to position itself apart from the rest by marketing a compelling narrative around 'non-processed' healthy food.
  3. Although a recently released Ministry for Agriculture New Zealand survey indicates urban and rural sectors agree on many of the main issues in agriculture, citizens remain dis-engaged from farming. Developing a New Zealand Food Strategy with all parts of the 'whole food system' could garner goodwill and strong relationships that sees New Zealand take a 'Team NZ' approach to the world stage.
  4. Education initiatives via a food strategy can also provide an economic boost to farmers via sales to citizens and could incorporate a new 'school lunch' market should the Government decide to adopt such a policy, and a growing awareness from citizens of the benefits of eating local and eating healthy.
  5. Any moves to brand the New Zealand Food Strategy concept into a deliverable market strategy would require a significant investment from the Agri-food sector in developing a future thinking message and would require industry to create and own that narrative.
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# Action Plan

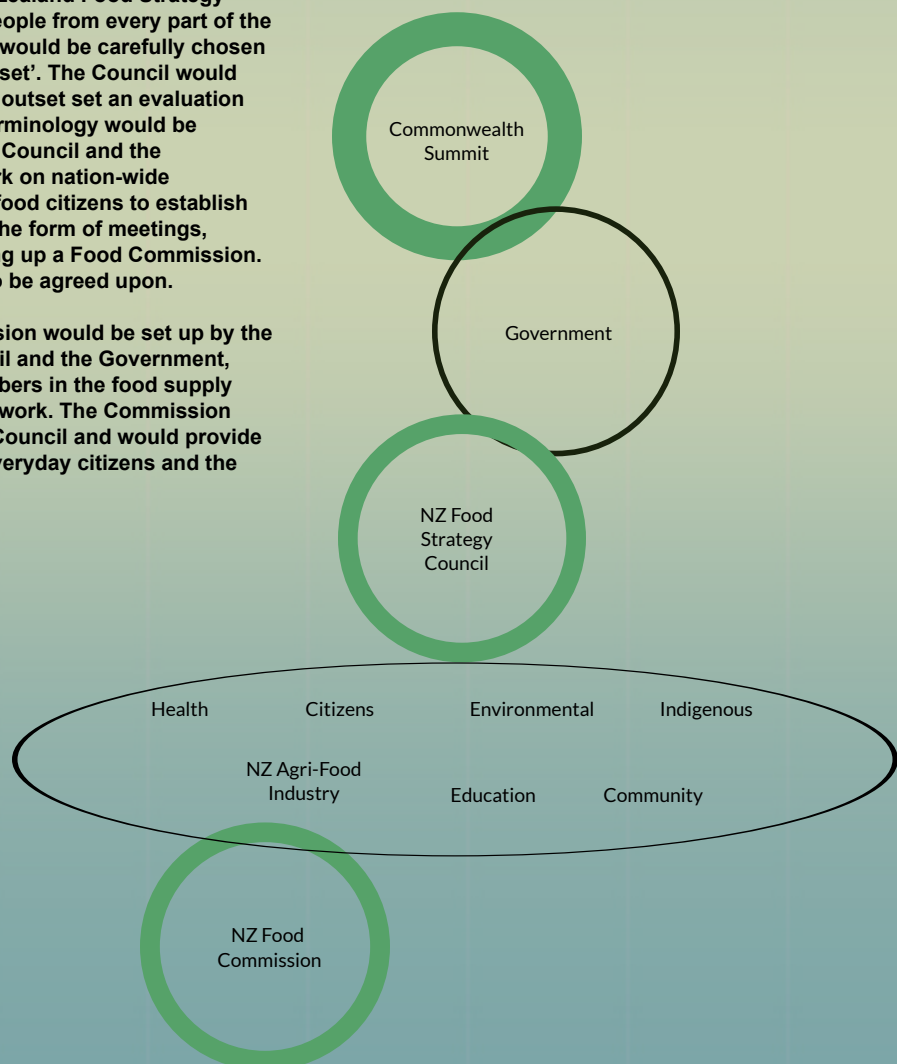
## A blueprint towards developing a New Zealand Food Strategy

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For New Zealand to develop a Food Strategy some important scoping actions are required.

These include:

1. The New Zealand Government invites and hosts a Commonwealth Summit on Food Policy to develop important networks and advice.
2. The Government sets up a New Zealand Food Strategy Council in which it appoints key people from every part of the whole food system. The delegates would be carefully chosen and would embrace a 'citizen mindset'. The Council would meet regularly and would from the outset set an evaluation framework and timeline. Agreed terminology would be prioritised. The New Zealand Food Council and the Government together would embark on nation-wide consultations with New Zealand's food citizens to establish their thoughts on a food policy in the form of meetings, surveys and submissions by setting up a Food Commission. Policy audit timeframes would also be agreed upon.
3. The New Zealand Food Commission would be set up by the New Zealand Food Strategy Council and the Government, and would involve grass root members in the food supply chain as well as the wider food network. The Commission would undertake research for the Council and would provide an ongoing connection between everyday citizens and the Food Council and Government.



## Case Study

# Bord Bia and Origin Green

## A case of a glass half full

Bord Bia (the Irish Food Board) is an Irish State Agency, founded in 1994 with the sole aim of promoting sales of Irish food and horticulture abroad and domestically. It is also an invaluable link between Irish producers and global customers and provides businesses with support and training.

However, as the co-ordinator of the world's first National Sustainability Programme in Origin Green, Bord Bia has been under the spotlight.

Launched in 2012, Origin Green is currently the only sustainability programme in the world which operates on a national scale, uniting Government, the private sector and food producers.

While there are some incremental steps in social food policy with Origin Green around health and nutrition, community initiatives and employee wellbeing, and the emphasis on sourcing raw materials locally, the programme is first and foremost an economically driven 'brand' framework, that is aspirational in wanting to deliver returns through branding Ireland as a sustainable producer.

For seven consecutive years Origin Green has delivered growth in food and beverage exports but it has its detractors. Late last year the Irish Wildlife Trust publically called the programme a 'marketing tactic' and an example of 'greenwash' (33).

The Trust claimed the Irish Agri-food sector was responsible for the principle pressure on water pollution, habitat loss and greenhouse gas emissions in Ireland and said marketing initiatives such as Origin Green significantly hindered efforts at environmental protection by creating the impression that 'all was well' in the countryside.

Sector disagreement and discourse will only continue, with the author interviewing various Irish food proponents who were deeply cynical and dis-trusting of a framework they perceived to be only a tool for higher economic returns for food producers.

And recent media scrutiny over the sustainability of a rapidly industrialised dairy sector is a roadmap on how isolated policy can have dramatic long term effects.

Ireland's EU agricultural commissioner Phil Hogan recently warned of unsustainable increase in milk production with Ireland's 7.3 million beef and dairy cattle placing intolerable strain on Ireland's bio-diversity, water safety and air quality.

The EU has found the sector has produced the most carbon emissions per Euro of food output in the entire EU28 and Ireland is a net importer of food calories. At the same time the intensification has seen Irish farmers desperately short of fodder for their cows.

Bord Bia's budgets have increased by 56 per cent in the past eight years and \$70 million Euros are spent every year on PR and promotions, but the slick campaigns don't hide the deep distrust it's citizens have in Origin Green or the increasing scrutiny Ireland will be put under if it continues down such an industrialised vision.

*Without a co-ordinated 'whole food system' approach in which all parties are discussing the implications of export growth in the sector and a human centred approach, Origin Green, risks getting left behind as countries like the United Kingdom and Canada seek to develop a more 'holistic' strategy. In short, citizens will demand more of the produce they buy from the supermarket.*

New Zealand, in its envy of the Origin Green framework, could end up replicating a 'cup half full' system if it continues down the pathway of a 'Primary Producer Council' that would not be embraced by savvy food citizens in overseas markets.

### Conclusions:

**1. Origin Green is a marketing programme designed to deliver returns to Ireland through promoting food sustainability. It is not a food strategy and does not put citizens first in its approach. Because of this it risks being left behind as countries like the United Kingdom, Canada and France seek a human centred approach that is aspirational and appeals to all citizens, not just those who produce food.**

**2. New Zealand must not let only economics drive a Food Strategy if it truly wants to be world-leading. Delaware State in America found the more intimately a person is with a problem, the more they want a solution. Thus New Zealand could lose its proudest voice - its citizens, and could sacrifice a possibly lucrative 'Team NZ' concept as outlined previously if it concentrates only on economic returns.**

## Case Study

# Minnesota

## By the Citizens, for the Citizens

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Minnesota is the fifth largest agricultural economy in the United States, yet has fewer supermarkets per capita than most States. Two out of three adults are overweight or obese and it's estimated 60 per cent of Minnesotans die from diet-related illnesses.

Driven by health concerns, the Minnesota Food Charter (34) was developed following a broad-based public process with aspirations to reduce the risk and cost of obesity and diet-related diseases, conserve State resources and boost economic prosperity.

The Charter is doing much work in teaching food skills to children and boasts a successful Farm to School programme(35) in two out of every three Minnesota school districts.

*The innovative programme has been important in getting children to connect to where their food comes from and in teaching them the role of food producers. Children also visit various farms and learn basic food skills.*

A core aim of Food Charter advocates is to build 'a culture of health' by investing in a more just and stronger food infrastructure as the State has a large number of food deserts.

The charter's 99 strategies are designed as a shared road map with many entry points, so that non-profits, businesses, grant-makers, government and tribal agencies can find ways to connect with one or more of its strategies.

### Conclusion:

**1. While Minnesota has concentrated on health outcomes for the State, its Food Charter is valuable in showing innovative ways of connecting food producers to citizens via its Farm to School programme. This is something that could be looked at for the New Zealand Food Strategy, alongside a school lunch system that not only provided health outcomes, but food literacy and goodwill towards the nation's agricultural producers.**



## Case Study

# Viva la France

Perhaps not surprisingly, given the French love affair with food and their cuisine, France has one of the most visionary rights based food policies in the world (36).

But it needs it as France through short term post Second-World War singular policy had all but broken its food systems and its cultural food heritage as farmers quit their farms (see below).

The Public Food Policy for Food was developed by the National Council of Food in 2010. 'Eating well is everyone's business!' became the slogan of the policy that aimed to:

- Facilitate access for all to quality food
- Enhance the quality of the food supply
- Improve knowledge and information on food
- Preserve and promote the French gastronomic and culinary heritage

Of interest to New Zealand is the way in which the French have used the policy to help food producers with issues such as employment.

With over 40 per cent of the French agricultural workforce past retiring age or set to retire, the French State has employed over 200 researchers and tutors to teach agro-ecology across the food loving nation, as a core part of the national agricultural education programme to help train the next generation of farmers.

France has now become the first country to ban supermarkets from throwing away or destroying unsold food which is still edible, and their food policy is also encouraging the development of food plans at a local level, short supply chains and education within schools.

### Conclusion:

**1. A food policy or strategy can be utilised across the whole food system to tackle a wide range of issues – be it training up the next generation of farmers to tackling food waste.**

**2. France's human rights based food policy has at its heart a collaborative approach but is able to nurture and grow its current food producers- proving one does not have to happen without the other.**

### How an unchecked industrialised agricultural system can destroy a food culture

After the Second World War, the French Government was ambitious for French agriculture production. Reconstruction involved ending food rationing but also in establishing France as a modern agricultural producer with a focus on increasing production.

Nation-wide infrastructure projects were begun to enable their goals including rural electrification and the expansion of industrial infrastructure. French policymakers were singular and ruthless in their drive for modernization with farmers en-masse losing their land, while those who remained were forced to undertake crushing loans to expand.

Between 1955 and 1975 between 40 000 and 50 000 farms disappeared every year with little thought to what the effects this industrialised policy would have on wider society.

By the end of the 1980s just 6 per cent of the active French population was still working in agriculture as compared to 33 per cent at the end of the Second World War. The world's second largest agricultural exporter had succeeded in becoming a food production powerhouse but as outlined in Venus Bivar's seminal 2018 book, *Organic Resistance- The Struggle over Industrial Farming in Postwar France*, societal costs were equally as great.

"Agricultural industrialization, and in particular its effect on the landscape, was ineluctably tied to profound social and cultural change...In examining more closely how French farmers responded to a new system of production that made the vast majority of them superfluous, I have tried to emphasize that beyond the impressive statistics regarding increases in productivity and economic growth, there was a very real human cost to be paid for such accomplishments. While the collective nation may have achieved grandeur in the end, it did so at the expense of countless individual citizens."

Today, France has recognised the shortcomings of post-war singular food policy in the face of criticism over a perceived 'fake artesian' ideal of French food and growing cynicism from French citizens. Its policy is bold and citizen centred.

# Conclusion

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We live in a world where industrial, digital and biological advancements have revolutionised the way in which we produce and consume food.

Where once most New Zealanders would share a common sense of identity with the traditional 'farmer' or have a link back to where food is produced, most today are undeniably divorced from the reality of food production.

Understanding the importance of food culture and how food impacts and connects every part of a citizen's life has not been realised.

Overseas, many developing countries and their Governments are facing alarming and looming health issues due to inadequate nutritional diets. New Zealand is facing the same problems. The devaluation and industrialisation of food has created a myriad of health problems in the developed world that is spreading globally. Malnourishment, obesity and other diet related health issues continue to put tremendous strain on health systems world-wide.

Up until now those issues were compartmentalised but there is a growing understanding of the value of considering a whole food system and developing policy accordingly that would address health, sustainability and economic issues.

At the same time citizens around the world are gaining an increasing consciousness around the nutrition and how food affects their health and culture of their society. This will lead, in the author's opinion to a mega marketing trend around 'non-processed' food that New Zealand could benefit immensely from.

*If New Zealand was to begin with a fresh new mandate from Government and industry that focused on forming an ethically humanity centred food strategy that puts all New Zealand citizens at its forefront and helm, it has the potential to deliver a new sustainable economic vibrancy to the rural sector.*

It also has the potential to deliver a 'Team NZ' loyalty and pride in our food production systems among all citizens and a healthier world-leading connected nation.

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**“Creating a prosperous, inclusive and equitable Fourth Industrial Revolution for society and citizens means being conscious of the choices we make in technological systems which will inevitably impact economic, environmental and social systems. This means having the courage to confront existing economic and political paradigms and reshaping them to empower individuals regardless of ethnicity, age, gender or background.” – Klaus Schwab, 2018.**

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# Recommendations

Food is an intimate connector among us yet broken food systems are creating malnourished, obese, disconnected citizens.

In order to halt this degradation of our food systems New Zealand needs to adopt a New Zealand Food Strategy that is culturally, environmentally and economically sustainable. In order for that to be achieved the following recommendations need to be achieved:

1. Much excellent work is being undertaken among our Commonwealth partners on the subject of food strategies and policies. The New Zealand Government should look to leverage off these nations and not to re-invent the wheel. Organising the collaborative Commonwealth Summit would ensure New Zealand's position as a thought leader while signalling to all parts of the food supply chain domestically, that it is serious about the very real problems of degrading our food systems. Canada, Scotland, Wales and England in particular are doing aspirational and visionary work in these areas, with many in these Governments expressing a willingness to share and to work together to ensure a common good. This partnership could also lead on to further trade and food relationships.

2. Current calls by the Minister for Agriculture to form a 'Primary Production Council' to facilitate an Agri-business New Zealand strategy is too narrow in its scope and risks following the Irish Bord Bia example that is currently under heavy criticism. Any discussion on a future strategy for food must be facilitated among the wider food network and New Zealand citizens.

3. A Food Commission should be created to enable strong facilitation between the public on a proposed food policy and would act as a vital bridge and messenger between citizens and the New Zealand Food Council. This empowerment will engender goodwill and a sense of loyalty to our Agri-Food sector.

4. It is vital that a New Zealand Food Council is established as quickly as possible but with dutiful consideration given to who the selected representatives should be. The Council must consist of all connectors to the food community including Central, Local and Regional Government, agricultural bodies and farmer representatives, manufacturers, businesses retailers, researchers, consumers, health and education bodies, indigenous and community groups. The Council's main task will be to initiate and progress the basis of the New Zealand Food Strategy policy, based on the findings of the New Zealand Food Commission, following an extensive consultation process and the findings from a Commonwealth Summit. It would also be responsible for establishing a robust evaluation framework using an extensive variety of specific indicators for measuring success, including policy audits.

5. 'Non-processed' healthy foods will be a key mega-trend of the future that is supported by Governments that are struggling with burgeoning health bills related to nutrient deficient processed diets. New Zealand must capitalise on this and begin to taper the message around our food exports and develop a 'Team New Zealand' story that emphasizes the healthy nutritious produce we grow. This could provide a lucrative world-leading marketing strategy that ensures our Agri-food sector's survival and prosperity.

7. Schools are an integral connector of communities and as such can provide a cultural bridge between food producers and citizens. A Farm to School Food programme could provide economic benefits and a new market to farmers via a school lunch programme while teaching food literacy and health to the younger generation. It would in turn engender goodwill between the food producer and the citizen and educate our future citizens on the value of food.

# References

## References:

- (1) Schwab, Klaus. 2016. "The Fourth Industrial Revolution".
- (2) Berno, Tracy. 2017. "Putting the culture back into agriculture." The New Zealand Land and Food Annual 2017. No Free Lunch. Can New Zealand feed the world sustainably?
- (3) Nielsen. 2015. "We are what we eat. Healthy Eating Trends Around the World."
- (4) Scottish Health Survey. 2016.
- (5) The Scottish Government. 2009. "Recipe for Success: Scotland's National Food and Drink Policy".
- (6) PwC. 2017. "Will robots really steal our jobs? An international analysis of the potential long-term impact of automation".
- (7) Ministry of Business, Innovation and Employment. 2015. "Regional Economic Activity Report".
- (8) Schwab, Klaus. 2017. "Shaping the Fourth Industrial Revolution". 14
- (9) Derbyshire, Emma J. 2017. "Flexitarian Diets and Health: A Review of the Evidence-Based Literature".
- (10) Allied Market Research. 2017. "Meat Substitute Market by Product Type (Tofu, Tempeh, Textured vegetable protein, Quorn, Seitan), Source (Soy, Wheat, Mycoprotein), Category (Frozen, Refrigerated, Shelf-stable) - Global Opportunity Analysis and Industry Forecast, 2014 – 2020"
- (11) Kira, Geoff. 2017. "A Utopia of Food Systems". 64. The New Zealand Land and Food Annual 2017. No Free Lunch. Can New Zealand feed the world sustainably?
- (12) Metcalf, Scragg, Schaaf, Dyall, Black and Jackson. 2016. "Dietary Intakes of European, Maori, Pacific and Asian Adults Living in Auckland. The Diabetes, Heart and Health Study".
- (13) Fraser, Ridler, Anderson. 2014. "The intensification of the NZ Dairy Industry – Ferrari cows being run on two-stroke fuel on road to nowhere?"
- (14) Freshwater Rescue Plan. 2017. [freshwaterrescueplan.org](http://freshwaterrescueplan.org)
- (15) Gove, Michael. 2018. "A Brighter Future for Farming" (16) Burke, Peter. 6 February, 2018. Rural News. "Agribusiness needs urgent vision."
- (17) Burlingame, Wham. 2018. 52. "Mission critical". The New Zealand Land and Food Annual 2017. No Free Lunch. Can New Zealand feed the world sustainably?
- (18) Food Ethics Council. 2017. "Food Citizenship. How thinking of ourselves differently can change the future of our food system."
- (19) Government of Canada. 2017. "A Food Policy for Canada"
  - **Food Secure Canada**
    - o From Patchwork to Policy Coherence: Principles and Priorities of Canada's National Food Policy (2017)
    - o Resetting the Table: A People's Food Policy for Canada (2015)
  - **The Canadian Agri-Food Policy Institute**
    - o Achieving What's Possible for Canada's Agri-Food Sector (PDF) (2016)
    - o Canada's Agri-Food Destination (PDF) (2011)
  - **The Canadian Federation of Agriculture**
    - o Towards a National Food Strategy (2011)
  - **The Conference Board of Canada**
    - o From Opportunity to Achievement: Canadian Food Strategy (2014)
- (20) Bray, Kim, Wilding. 2017. "Obesity: a chronic relapsing progressing disease process. A position statement of the World Obesity Federation."
- (21) LeForte, Rob. 2016. "The 2 billion problem in our hospitals. Canadian Malnutrition Week."
- (22) Gooch, Felfel. 2014. "27 Billion Revisited. The Cost of Canada's Annual Food Waste."
- (23) Thaler, Sunstein. 2009. "Nudge."
- (24) T.H. Chan School of Public Health, Harvard University. 2016. <https://www.hsph.harvard.edu/obesity-prevention-source/obesity-causes/globalization-and-obesity/>
- (25) Beef and Lamb New Zealand. 2018. "Future of Meat: How should New Zealand's Red Meat Sector Respond to Alternative Protein Advancements?"
- (26) NutriNet-Sante. 2018. "Consumption of ultra-processed foods and cancer risk: results from NutriNet-Sante prospective cohort." <http://www.bmj.com/content/360/bmj.k322>
- (27) TFP Food and Beverage Mega Trends 2017-2018.
- (28) The Sunday Times. October 21 2017. "Joe Wicks: the man with the (body) plan".
- (29) Castrodale, Jelisa. February 16, 2018. USA Today. "McDonald's making strong push to make Happy Meals healthy meals."
- (30) Bord Bia, Irish Food Board. 2017. "Export Performance and Prospects. Irish Food, Drink and Horticulture 2016-2017."
- (31) Ministry of Primary Industries (New Zealand). 2018. "New Zealanders' views of the primary sector".
- (32) ASDA. 2016. "UK kids go hungry when it comes to knowledge about food."
- (33) O'Sullivan, Kevin. The Irish Times. October 4 2017. "Environmental Group Calls Origin Green a 'sham'".
- (34) Minnesota Food Charter. 2017. "Minnesota Food Charter. For Our Healthy Future." [mnfoodcharter.com](http://mnfoodcharter.com)
- (35) University of Minnesota Documentary. 2012. "Farm to School. Growing our Future Documentary." <http://www.extension.umn.edu/food/farm-to-school/about/documentary/>
- (36) Mennecier, Paul, Directorate General for Food. "Food Policy in France." [https://www.hah.hr/pdf/wfd\\_2011/Mennecier-French%20Food%20policy.pdf](https://www.hah.hr/pdf/wfd_2011/Mennecier-French%20Food%20policy.pdf)

## Other References:

- Bivar, Venus, 2018: "Organic Resistance, The Struggle over Industrial Farming in Postwar France"
- Berry, Wedell, 1996: "The Unsettling of America"
- Gibbons, John, Irish Times, 2018: Fodder crisis proves we have too many cows



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