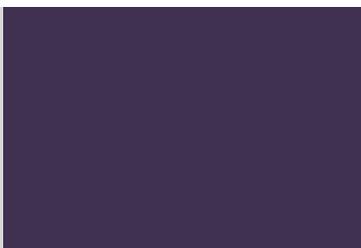
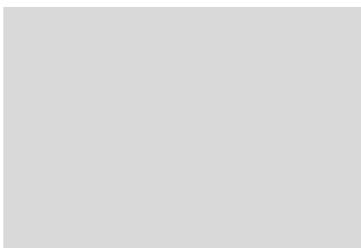


A review of food security policies

Horticulture New Zealand

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Glossary

Abbreviation	Stands for
EU	European Union
FAO	Food and Agriculture Organisation
GM	Genetically modified
GMO	Genetically modified organism
IFPRI	International Food Policy Research Institute
IMF	International Monetary Fund
Kcal	Kilocalorie
NZ	New Zealand
PMSEIC	Prime Minister's Science, Engineering and Innovation Council
UK	United Kingdom
US	United States (of America)
USDA	United States Department of Agriculture
WTO	World Trade Organisation

1. Purpose of report

There are several policy outcomes that may be important to New Zealanders which would be supported by encouraging local produce. Our research suggests that food security policy is a priority in several overseas jurisdictions. In this report, we undertake a high-level scan of the arguments for, and against, a food security policy that supports local produce.

The objective of this piece of work is not to mount an argument for a specific New Zealand food security policy, but rather to highlight the policy outcomes that may give rise to a food security policy.

Food security policies are not specific to fresh produce. Although food security may be discussed in the context of policy to ensure equality of access and adequate nutrition, this generally has a broad scope. The discussion in this paper relates to food security policy in this wider context. For example, some fresh foods cannot be imported to New Zealand because of the distance to potential source countries and the short shelf life of these foods. Food security policy in other jurisdictions does not typically deal with this specific issue and it is not the focus of this paper. Environmental and land use policy and some health policy (such as nutrient based pricing interventions and health education) are likely to be more relevant to the accessibility of fresh vegetables in New Zealand. To the extent that New Zealand is not self-sufficient in fresh vegetables, processed vegetables or other foods may be substituted to the extent that importing fresh produce is not feasible.

1.1 Conclusion on food security

The key factors that influence a country's food security priorities and policy are dictated by the country's social, economic, historical and geopolitical circumstances. Even amongst developed countries, there are a variety of different perspectives and approaches. In most developed countries, food security is less about ensuring the supply of food (though that has become more of a priority following the 2007-08 food price crisis), and more about ensuring access to nutritious food for all parts of the population.

However, our review also highlighted several other issues as important in the food security debate. The impacts of climate change and extreme weather events on food production, food wastage, sustainability and food access for disadvantage or underprivileged members of society were all issues that have become key parts of the discussion around food security. The impacts of high food prices during the 2007-08 food price crisis also highlighted the dangers of a reliance on importing food.

When considering the significance of these arguments from a New Zealand perspective, there are two arguments that may encourage increased domestic production: food self-sufficiency and food self-reliance.

A movement towards increased food self-sufficiency could be beneficial for New Zealand's food security given the potential impacts that increased food prices could have on disadvantaged parts of society. Increased domestic production of horticulture, particularly in a variety of different crops, could improve the nation's ability to feed itself and make it less dependent on imports. It would also be less susceptible to a single crop failure from disease or biosecurity incursion.

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Increased domestic production could also support New Zealand's ability to be food self-reliant. If New Zealand is able to increase the quantity and quality of crops in which it has a comparative advantage (such as kiwifruit or milk), then this could drive higher income from exports. This would enable an increased variety of foods to be imported that can serve the country's food security agenda.

While the objectives of increased food self-sufficiency and food self-reliance may seem in opposition to each other, this would only be the case if the domestic production sector remained static. A more diverse and productive domestic food sector would likely help serve both goals and improve the overall level of food security in New Zealand. To achieve these goals, domestic production must be strategic and informed, responding to consumer trends internationally, as well as the stability and accessibility of food for New Zealanders.

2. Food security policies around the world

The definition of food security has experienced a substantial evolution over a period of decades, moving from a supply-focused concept, mostly related to food availability, to a multidimensional notion that considers food accessibility, food utilisation and food stability.

One regularly cited definition of food security was defined at the World Food Summit in 1996 by the Food and Agriculture Organisation (FAO)¹ and is stated below.

“Food security is achieved when all people at all times have physical and economic access to sufficient, safe and nutritious food to meet dietary needs and food preferences for an active and healthy life”

This definition of food security encompasses the five key pillars of availability, accessibility, acceptability, adequacy and stability.² These are defined as:

- **Availability** – Sufficient supply of food for all people at all times
- **Accessibility** – Also referred to as *equality of access to food*; this describes the idea of physical and economic access to food at all times
- **Acceptability** – Access to culturally acceptable food which is produced and obtained in ways that do not compromise people’s dignity, self-respect or human rights
- **Adequacy** – Access to food that is nutritious, safe and produced in environmentally sustainable ways
- **Stability** - Reliability of food supply.

Nations will prioritise different dimensions of food security to reflect their social, economic, geographic, historic and cultural experience and goals. Table 1 summarises potential issues that developed countries may focus on within each of the dimensions of food security.

Table 1 – Issues in food security for developed countries

Dimension	Issues for developed countries
Availability	<ul style="list-style-type: none"> • Supply to remote communities • Rising dependence on imported foods • Rising dependence on specific countries for imported foods
Accessibility	<ul style="list-style-type: none"> • Ability to provide for disadvantaged groups – e.g. some indigenous populations or people in institutions • Ability to provide for those facing poverty • Ability to provide nutritious food for children • Cost and promotion of nutritious food relative to ‘junk food’ • Idea of universal access to food i.e. ‘food as a right’ • Mental and social costs associated with food insecurity
Acceptability	<ul style="list-style-type: none"> • Concerns about sources of some imported foods

¹ FAO (2016) Rome Declaration on World Food Security

² PMSEIC (2011) Australia and Food Security in a Changing World

	<ul style="list-style-type: none"> • Perceptions of risk and lack of understanding of food production and associated technology • Cultural and family issues (migration, need for special foods, food and nutrition literacy, group attitudes and work/life balance)
Adequacy	<ul style="list-style-type: none"> • Fresh fruit and vegetables can be seasonal and import dependent • Ability to meet nutrient needs • Ready access to cheap food of poor nutritional quality
Stability	<ul style="list-style-type: none"> • Impact of urbanisation and loss of horticultural land • Supply of fertilisers and agricultural and veterinary chemicals • Impact of severe and more frequent droughts and heatwaves • Biosecurity incursions • Resilience of infrastructure relating to food • Resilience local food systems including small scale urban/community production • Increasing global food prices

Source: PMSEIC (2011) augmented with Sapere research

2.1 The spectrum of food security policy

For nearly three decades, food prices were cheap, the world seemingly able to meet its needs, with real prices reaching an all-time low in the early 2000s. But in 2005, global prices of wheat, rice and other cereals began to rise and then surged in 2008, with rice leaping from about \$350 to nearly \$1,000, triggering panic and unrest. Global food prices increased by 83% between 2005 and 2008, with maize prices almost tripling, wheat prices increasing 127%, and rice prices increasing 170% between the period January 2005 and June 2008.³ In this report, we refer to this series of events as the 2007-08 food price crisis.

The International Food Policy Research Institute (IFPRI) studied the causes that led to the 2007-08 food price crisis. It concluded the crisis was not primarily driven by declines in crop yields or stocks, nor rising demand for meat and feed grains or even futures market speculation.

Instead, the crisis was triggered by:

- Growing demand for biofuels, which drove up prices of corn and soybeans
- Higher energy prices, which made biofuels profitable and crops that feed them more sought after. Higher oil prices also boosted farm production costs, such as diesel.
- Falling value of the U.S. dollar.
- Export bans and panic buying, particularly for rice, of which only about 6 per cent of the global crop is exported, making international prices more volatile.
- Bad weather, particularly triggered by cuts in wheat production in Ukraine, Australia and Argentina.⁴

³ Mittal (2009) The 2008 food price crisis: rethinking food security policies

⁴ Headey and Fan (2010) Reflections on the global food crisis

The 2007-08 food price crisis brought higher and more volatile food prices, revived global awareness of the persistent problem of hunger and food insecurity in regions all over the world, and highlighted the importance of food and nutritional security for economic development and political stability. Many countries expressed increased interest in pursuing policies to bolster their levels of food self-sufficiency, which were also supported by growing social movements that warned of the problems associated with an excessive reliance on international markets. At the same time, there was also widespread critique of policies designed to support food self-sufficiency, on the grounds that they encourage inefficient outcomes and can disrupt trade.

This debate illustrates some of the distinctions between different types of food security policy. Broadly, the selection of a national food security strategy or policy depends on the production resources and on the systemic and institutional condition of the political, economic and social life of a country.⁵ Based on the different resources and capacities of each nation, the FAO determined that food policy strategies tend to fall into three broad types of policies. They were:

- Food self-reliance
- Food self-sufficiency
- Food sovereignty

These policies all strive for adequate supply of food, but lie on a spectrum with respect to the openness of a country to trade (food) and conversely the emphasis on local production and control of agricultural and market processes.

A policy of food *self-reliance* implies that the country's production focuses on the production and export of food products in which the country holds a comparative advantage, and then using resources generated from the export of those goods to pay for the import of other types of food products that are demanded.⁶ The percentage of the world population living in countries which are food self-reliant (defined as having access to greater than 2,500 kcal/capita/day) has almost doubled from 33% in 1965 to 61% in 2005. Similarly, the population living with critically low food supply (defined as having access to fewer than 2,000 kcal/capita/day) has dropped from 52% to 3% over the same period.⁷

A country that is food *self-sufficient* can meet the consumption needs of its population (particularly for staple food crops) from its own production rather than by buying or importing.⁸ Aiming for food self-sufficiency as a policy is economically efficient if the country has a comparative advantage in growing its own food. While food self-reliance has improved, food self-sufficiency (defined as domestic production greater than 2,500 kcal/capita/day) has not significantly changed.⁹ In 1975, it was estimated that approximately 62% of the world's population lived in countries that were "approximately food self-sufficient", and more recent estimates found similar proportions 40 years

⁵ Pieters et al (2012) Perspectives on relevant concepts related to food and nutrition security

⁶ Herdt (1998) Assisting developing countries towards food self-reliance

⁷ Porkka et al (2013) From Food Insufficiency towards Trade Dependency: A Historical Analysis of Global Food Availability

⁸ Minot et al (2010) Food security and food self sufficiency in Bhutan

⁹ Porkka et al (2013) From Food Insufficiency towards Trade Dependency: A Historical Analysis of Global Food Availability

later.¹⁰ The lack of significant change in self-sufficiency rates overall over this period is despite the fact that food production has increased globally by 50% since the mid-1980s.¹¹

This change, whereby self-reliance can increase with little change in self-sufficiency reflects the global trade network for food. In the past, insufficient domestic production meant typically insufficient food supply. However, in recent years, a deficit in production can be readily compensated for in most countries through increasing food imports, creating less of a dependency on domestic production as a necessity for food security.

The last decade has seen an increased support for the concept of *food sovereignty*, which holds that it is the right of each nation to maintain control over its agricultural processes and food markets, including the methods of producing, obtaining, and distributing food.¹² Food sovereignty is based on seven basic principles that form the critical foundations for achieving food security at the individual, household, national, regional and global levels. These principles are summarised in Table 2.

Table 2 – Principles of food sovereignty

Principle	Description
Food: A basic human right	Everyone must have access to safe, nutritious and culturally appropriate food in sufficient quantity and quality to sustain a healthy life with full human dignity. Each nation should declare that access to food is a constitutional right and guarantee the development of the primary sector to ensure the concrete realization of this fundamental right.
Agrarian reform	Genuine agrarian reform is necessary which gives landless and farming people — especially women — ownership and control of the land they work and returns territories to indigenous peoples. The right to land must be free of discrimination on the basis of gender, religion, race, social class or ideology; the land belongs to those who work it.
Protecting natural resources	Food sovereignty entails the sustainable care and use of natural resources, especially land, water, and seeds and livestock breeds. The people who work the land must have the right to practice sustainable management of natural resources and to conserve biodiversity free of restrictive intellectual property rights. This can only be done from a sound economic basis with security of tenure, healthy soils and reduced use of agro-chemicals.

¹⁰ Puma et al (2015) Assessing the evolving fragility of the global food system

¹¹ D'Ororico et al (2014) Feeding humanity through global food trade

¹² Polzin (2018) Food security vs. Food sovereignty

<p>Reorganising food trade</p>	<p>Food is first and foremost a source of nutrition and only secondarily an item of trade. National agricultural policies must prioritize production for domestic consumption and food self-sufficiency. Food imports must not displace local production nor depress prices.</p>
<p>Ending the globalisation of hunger</p>	<p>Food sovereignty is undermined by multilateral institutions and by speculative capital. The growing control of multinational corporations over agricultural policies has been facilitated by the economic policies of multilateral organizations such as the WTO, World Bank and the IMF. Regulation and taxation of speculative capital and a strictly enforced Code of Conduct for trans-national corporations is therefore needed.</p>
<p>Social peace</p>	<p>Everyone has the right to be free from violence. Food must not be used as a weapon. Increasing levels of poverty and marginalisation in the countryside, along with the growing oppression of ethnic minorities and indigenous populations, aggravate situations of injustice and hopelessness. The ongoing displacement, forced urbanization, repression and increasing incidence of racism of smallholder farmers cannot be tolerated.</p>
<p>Democratic control</p>	<p>Smallholder farmers must have direct input into formulating agricultural policies at all levels. The United Nations and related organizations will have to undergo a process of democratization to enable this to become a reality. Everyone has the right to honest, accurate information and open and democratic decision-making. These rights form the basis of good governance, accountability and equal participation in economic, political and social life, free from all forms of discrimination. Rural women, in particular, must be granted direct and active decision-making on food and rural issues.</p>

Source Via Campesina (2018)

A country's food security policy may contain different elements of these types of policies. For example, a country may be seeking both to improve food self-reliance as well as food sovereignty in its food security policy. Ultimately, conceptualising each type of policy as a continuum, rather than as absolute states, can provide more meaningful insight into the optimal policy settings for ensuring long-term sustainable food security.

2.2 A review of food security policies and priorities in developed countries

When discussing food security, it is important to acknowledge that the social, economic, historical and geopolitical circumstances of a country will inevitably create vastly different priorities for different countries. In developed countries, food supply is seldom a major issue. The ability to either grow

domestic crops or import necessary volumes and types of food means that most developed countries usually enjoy some degree of food self-reliance. Developing countries on the other hand, can be faced with issues such as unstable institutions, limited or narrow productive capacity or civil unrest that makes their ongoing food security much less certain.

For the purposes of our analysis of food security policies and priorities, we focus on several developed countries, as the issues and challenges they face are more likely to be reflective of those faced by New Zealand. In developed countries, food security policies tend to be motivated by one of the following:

- ensuring the ongoing security of food for the population
- improving access to nutritious and healthy food to all parts of society
- encouraging or developing the ongoing sustainability of the national food system.

The extent to which a policy supporting local produce could be supported will depend on the extent to which it is able to service one of those policy outcomes, and how important each of those objectives is considered in the broader policy priorities of the country in question.

The key arguments guiding those developed countries policies are summarised in Table 3. We can see that countries vary significantly in their priorities, although there are a number of cross-cutting themes:

- A key objective that underpins each country's food security policy is ensuring that people have access to food that provides for their daily nutrient requirements.
- The food security policies of most nations (and globally) have been heavily impacted by the experience of the 2007-08 food price crisis, and the impact of rising food prices on food security – this is a priority for countries such as Japan and Switzerland who have a rising dependence on imported food.
- The impacts of climate change and extreme weather events, issues relating to food wastage and sustainability and access to nutritious food for disadvantaged and underprivileged groups were also issues identified in most food security policies.
- While not a prominent part of many food security policies, perceptions and concerns about genetically modified (GM) food did feature in the discourse of several jurisdictions.
- While potentially a basis for supporting increased domestic production, issues raised around concerns about food safety and biosecurity issues relating to imported foods were relatively uncommon.

Table 3 – Key issues raised in food security discussions in each jurisdiction

Dimension		Australia	United Kingdom	Canada	United States	Japan	Switzerland	Netherlands
Availability	Ability to supply to remote communities			✓				✓
	Rising dependence on imported foods	✓	✓			✓	✓	
	Rising dependence on specific countries for import of food	✓	✓			✓		
Accessibility	Ability to provide for disadvantaged groups	✓	✓	✓				✓
	Ability to provide for those facing poverty	✓	✓	✓	✓			✓
	Ability to provide nutritious food for children			✓	✓			✓
	Cost and promotion of nutritious food relative to 'junk food'			✓	✓			
	Idea of 'universal access' to food, i.e. food as a right			✓			✓	✓
	Mental and social costs arising from food insecurity	✓		✓				
Acceptability	Concerns about sources of some imported foods	✓	✓					
	Perceptions of risk and lack of understanding of food production (e.g. GMOs, ethically sourced food)	✓	✓			✓	✓	
	Ability to meet cultural and family issues			✓			✓	✓
	Concerns about food wastage	✓	✓	✓			✓	✓
	Long term sustainability of production	✓		✓		✓	✓	✓
Adequacy	Fresh fruit and vegetables can be seasonal and import dependent	✓	✓			✓	✓	
	Ability to meet nutrient needs	✓	✓	✓	✓	✓	✓	✓
	Ready access to cheap food of poor nutritional quality				✓			
Stability	Impact of urbanisation and loss of agricultural land	✓				✓	✓	✓
	Ability to maintain supply of fertilisers and agricultural and veterinary chemicals	✓					✓	
	Impact of severe and more frequent extreme weather events	✓		✓		✓	✓	✓
	Biosecurity incursions	✓		✓		✓		
	Impacts of changes affecting agricultural workforce	✓	✓	✓		✓		
	Resilience of infrastructure relating to food		✓				✓	✓
	Resilient local food systems including smaller scale urban/community production			✓			✓	✓
	Increasing global food prices	✓	✓	✓		✓	✓	✓

Source Sapere analysis based on the criteria in Table 1

Appendix A describes, at a high level, the food security policies and the priorities of each country.

3. An analysis of potential food security policy arguments

In this section, we consider some of the major arguments that have been raised as part of the discourse on developing national food security policies. We focus on the arguments that could have relevance for supporting increased domestic production as part of a potential food security policy in New Zealand.

3.1 Moving towards greater food self-sufficiency

Overview of policy argument

The 2007-08 food price crisis highlighted the reliance of many countries on trade to satisfy their food needs and caused some countries to revisit the importance of food self-sufficiency as a matter of national security. From a global efficiency point of view, food self-reliance is the best strategy a nation can pursue to achieve food security when markets are relatively free: each country produces the food in which it has a comparative advantage and imports other foods to complement their domestic produce.

However, advocates of food self-sufficiency tend to argue that markets are imperfect, and they can be affected by global and domestic events that significantly impact major exporters. Therefore, they argue it is risky to fully rely on global markets for the fulfilment of basic needs, and a country should where possible, seek to develop its own domestic productive capacity. Some countries may determine that food self-sufficiency is a desired outcome even if it comes at the cost of economic efficiency.

Arguments for pursuing this policy

An important consideration when discussing food sufficiency is the idea that the concept is a continuum rather than an absolute state.¹³ In practice, countries often seek to achieve greater domestic food production as a proportion of their overall consumption, but rarely eschew all trade.

Ensuring a measure of self-sufficiency in food can provide governments with a contingency against supply disruptions that may arise in the context of war, a decline in availability of food on international markets or volatile food prices on international food markets. While food security in most countries (including New Zealand) has been greatly improved through global food trade, the 2007-08 food price crisis showed that countries typically focused inward firstly when faced with shocks in their food supply. This means in times of crisis, it can be difficult to rely on global trade to provide the breadth and volume of food needed to provide optimal nutrition to a country's population, and as such, food self-sufficiency achieved through a greater diversity and volume of domestic production can be beneficial.

The pursuit of food self-sufficiency can also provide a means to bolster a country's domestic farm sectors and support and grow economic activity in regional and rural areas. While not necessarily the

¹³ FAO (2016) Food self-sufficiency and international trade: a false dichotomy?

core reason for pursuing a food self-sufficiency policy, it is an additional benefit that should be taken into consideration.

Arguments against pursuing this policy

Naylor and Falcon (2010) argue that food self-sufficiency policies are misguided, as the policies designed to support it are typically inefficient and trade-distorting.¹⁴ They criticise the implementation of trade restrictions, tariffs and subsidies in the name of food self-sufficiency as dangerous and costly policies that can undermine long-run food security by closing off opportunities for improved efficiency, increasing food prices, and rendering domestic farms uncompetitive on the global market.

Kerr (2011) also criticises the idea of food self-sufficiency policies driven by protective measures aimed at local and national producers.¹⁵ He argues that protection-based self-sufficiency cannot realise food security, and he makes the following arguments:

1. Many vulnerable or disadvantaged cohorts are often net-consumers who spend a significant part of their income on food. An increase in prices resulting from protectionist trade measures can thus move households from being food secure to food insecure.
2. Many regions in the world nowadays are not self-sufficient, as demand is often higher than supply for food production. If self-sufficiency is pursued, these regions must increase their production, which can in turn place stress on the land, jeopardising biosecurity and the environment.
3. Local food system failures, such as famines, disease and monopolies, can raise prices which can compromise the food secure status of more vulnerable consumers.

3.2 Moving towards greater food sovereignty

Overview of policy argument

While food self-sufficiency concerns itself with the methods by which a country can produce enough food to feed its population, food sovereignty focuses on how this food production occurs and the impacts this has on producers, businesses and regions that are involved in the process. Factors such as sustainability, equality, ownership and rights of farmers and landowners are all important considerations when food sovereignty is the desired outcome, and these can significantly influence how a country chooses to feed itself.

An active pursuit of a food sovereignty policy acknowledges that there are elements in the existing food production system that detract from a personal or community sense of food security. This is not usually an absence of sufficient food, but typically relates to concerns about the adequacy, accessibility or stability of the food production system at a local level and the extent to which the current system of food production is failing in these measures.

¹⁴ Naylor and Falcon (2010) Food security in an era of economic volatility

¹⁵ Kerr (2011) Food Sovereignty: Old Protectionism in Somewhat Recycled Bottles

Arguments for pursuing this policy

Food sovereignty policies support stronger representation of smaller and local producers by empowering them to exercise their rights in the design, implementation and oversight of policies that affect them. These policies aim to be more inclusive and encourage dialogues in which different actors – from large corporate agricultural investors, to governments, to representatives of small-scale producers and consumers' organisations – all have an equal say in the direction of food policy.

Domestic production is a key component of any movement towards food sovereignty, and one of the key principles of food sovereignty is the idea of the reorganisation of food trade. This principle states that “...*national agricultural policies must prioritize production for domestic consumption and food self-sufficiency. Food imports must not displace local production nor depress prices.*”¹⁶ Such a policy would empower local producers to be more directly responsive to local demands first and foremost, and as such, better meet the specific food security needs of different groups and people across the social spectrum.

A focus on sustainability associated with food sovereignty principles could also have significant impacts that drive improved land management and ecological outcomes, ensuring the alignment of policies that allow for the long-term sustainability of agricultural producers.

Arguments against pursuing this policy

A criticism of the pursuit of food sovereignty is summarised in a quote from a senior Latin American official in FAO.

If we already have a broad consensus of food security at an intergovernmental level, what is the goal of those who are pursuing a new concept of food sovereignty? In practical terms, what is gained from this? There is a suspicion that behind it there could be policies restricting international trade, investment flows or patent recognition. We should consider that these questions must have clear answers before any debate or adoption of the concept.¹⁷

Ultimately, food sovereignty introduces a lot of additional elements into the food security debate that could manifest in policies and outcomes that can constrain trade or infringe on rights, without improving the state of food security.

While not necessarily an argument against a food sovereignty policy per se, it could also be argued that food sovereignty is already in practice in New Zealand to some extent. A wide range of stakeholders are engaged in setting food policy, and it is unclear that a further step to incorporate further aspects of food sovereignty (such as more radical agrarian reform or transfer of land rights) would necessarily improve the net welfare of New Zealanders.

¹⁶ Via Campesina (1996), Food Sovereignty: A Future without Hunger. Declaration at the 1996 World Food Summit, Rome, Italy.

¹⁷ FAO (2013) Food security and sovereignty

3.3 Increased production of foods of specialisation to support food self-reliance

Overview of policy argument

As discussed previously, food security is not only about the supply of food, but how it is distributed across society. A policy of food self-reliance, where countries produce their comparative advantage and import other foods, can also support increased domestic production as the climatic and soil conditions of New Zealand's growing regions provide the basis for specialisation in produce such as horticulture and dairy. Increasing the scale of exports in these specialisations can help maximise the value of New Zealand's agricultural exports and in turn, enable the purchase of additional food imports which can improve the overall level of food security across the country.

Arguments for pursuing this policy

The conventional thinking regarding food policy generally favours the growing and trade of crops in which a country has a comparative advantage whether due to physical endowments such as soil, climate, water and land assets or non-physical endowments such as specific knowledge, skills or technology. Many of New Zealand's food producers have taken advantage of these endowments and as such have been able to produce goods that are demanded on the global market.

Domestically, a comparative advantage in tradable horticultural produce would also imply that domestically produced horticulture would be more affordable than equivalent imported produce or ready-to-eat products if economies of scale could be realised. This can be important for providing access to nutritious food for communities and cohorts who are highly price sensitive, and for whom alternative forms of nutrition may be more expensive.

Arguments against pursuing this policy

While a specialisation into specific types of produce in which New Zealand has a comparative advantage will generate the most efficient outcome through trade, a narrower range of productive capacity means that New Zealand would be at greater risk of food insecurity in times when there are disruptions to trade flows. More specialisation also means that New Zealand's ability to import food products can be heavily impacted by global commodity prices for particular goods which it exports. If faced with increased competition or a decline in global demand for its goods, the price impacts on imported goods into New Zealand could be substantial.

A narrow range of productive capacity also exposes a country to the risk of a single failure. Where crops are not diversified, a disease may be devastating for total agricultural output, relative to a more diversified industry.

3.4 Managing risk associated with climate change and food safety

Overview of policy argument

Food security policies should not only focus on the ability of a country to source or produce food under current social and economic settings, but with a consideration for how things have changed and will change over time. Managing major events that can impact food security, such as biosecurity or food safety events, as well as the potential impacts of extreme weather events, should be a priority of any food security policy.

While exporting nations do all they can to control for risks such as biosecurity incursions or extreme weather events, they are usually unpredictable and difficult to fully contain once they occur. Moreover, given the scale of imports that make their way into New Zealand every day, it is not feasible to expect that potential threats will always be detected. Other events, such as conflict or social unrest in producing countries also represent a means by which disruption could occur.

Arguments for pursuing this policy

Recent global food safety events have highlighted the significance of biosecurity and food safety as a major part of ensuring ongoing and sustainable food security, and have also shown how quickly disruptions can interrupt the supply of food products. Biosecurity incursions, such as bacteria found in New Zealand milk powder in 2013¹⁸ or the outbreak of Tasmania Fruit Fly in 2018 in Australia, can shut down entire supply chains and bring the trade of food to a halt.¹⁹ From a food safety perspective, domestic production provides an alternative source for supplying food when major events occur and provide a form of risk management via diversifying the sources of food in the New Zealand food basket.

Similarly, one of the major contributors to the 2007-08 food price crisis was reduced productive yields from agricultural producers around the world due to the impacts of climate change events. While New Zealand was not as heavily impacted as some other countries from a food supply perspective, the increased frequency and severity of extreme weather events could one day manifest itself in an event that cripples the ability of one of New Zealand's major importing partners to supply food. While New Zealand itself is not immune to extreme weather events or biosecurity incursions, the geographic distribution of food production (particularly horticulture) across the country provides a means by which impacts of events can be isolated and price impacts dampened.

Arguments against pursuing this policy

While there is a theoretical basis for this argument, it is unclear the extent to which nations from which New Zealand imports the majority of its food products represent higher risk options. This means that the substitution of these imports for domestic production may not necessarily produce superior outcomes. Major disruptive events such as extreme weather events are largely unpredictable

¹⁸ Reuters (2013) *China bans New Zealand milk powder imports on botulism scare: NZ trade minister*

¹⁹ The Australian (2018) *Taiwan suspends Tasmanian fruit imports*

in both their scale and where they occur and given the long-term nature of food trade contracts, it would be difficult to design a food security policy that could reasonably control for this volatility. It is unclear if increased domestic production offers any means to mitigate these risks.

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Appendix A: Food security policies in selected developed countries

AUSTRALIA

Main food security dimension of focus: Accessibility, acceptability, stability

Australia's need for a food security policy was highlighted by the 2007-08 food price crisis, with the impacts of the extended drought impacting Australian producers pointed to as one of the contributors to the global crisis.²⁰ For Australia food security is inextricably linked to the political stability of the region and has implications for national security.

Australia has enjoyed cheap, safe and high-quality food for many decades, and currently produces enough food to feed its population (and more). However, continued population growth and climate change constraints could turn Australia into a more import-dependent country, a trend which has continued as Australians are demanding an increasing variety of food.

This is compounded by additional risks facing Australia's food production system, including decreasing productivity in primary industries, climate change impacts, loss of productive land, reliance on imported inputs such as fertilisers, and biosecurity and food disease risks. Concerns also exist regarding health and diet-related burdens arising from under-nutrition for segments of the population.

Biotechnology, which includes the development of GM organisms (GMOs), is becoming increasingly widespread in Australian agriculture. The use of GMOs in Australian agricultural systems has the potential to drive increased plant and animal production, greater efficiency of plant and animal production and the potential to better manage environmental challenges such as drought and salinity.²¹

Ultimately, Australia has a food security policy aimed at achieving food self-reliance, with its strong productive base and an ability to import a wide variety of foods.

UNITED KINGDOM

Main food security dimension of focus: Availability, accessibility, stability

Food security as an issue was highlighted by the 2007-08 food price crisis, but has been exacerbated by the implications of Brexit on the United Kingdom's food supply. Despite being a major agricultural producer, the UK is nonetheless heavily reliant on imports for its food, with imports making up 48% of total food consumed, a percentage which is unlikely to change in the near future.

²⁰ PMSEIC (2011) Australia and food security in a changing world

²¹ PMSEIC (2011) Australia and food security in a changing world

In a UK Cabinet Office review of the food sector, The UK food sector was described as having a highly effective and resilient food supply chain, owing to the size, geographic diversity and competitive nature of the industry.²² A recent study has also suggested that the UK has adequate supply of all key nutrients except fibre (due to consumption of refined rather than whole wheat flour).²³

The country is faced with the reality that it will need to strike new trade deals in light of the decision to leave the European Union (EU), and this casts considerable uncertainty on the UK's food security in the short term. As such, much of the discourse facing food security in the UK at the moment is focused on the means by which the country will be able to secure its long-term food security. Questions arise with regard to sourcing, the just-in-time nature of current food logistics and the reliance of food infrastructure on other sectors such as fuel, transport and trade routes, which will all be affected by Brexit.

The UK has considered both supply-side and demand-side responses to assist with improving food self-sufficiency in light of the food security changes that would arise from leaving the EU. On the supply-side, responses include addressing reductions in agricultural labour, diversification of the UK's agricultural basket (such as by horticultural producers being established overseas to service the British market) and ensuring resilience of infrastructure critical to food. On the demand-side, responses include reducing food waste, changing food consumption patterns to better adapt and ensuring an equitable food distribution.²⁴

CANADA

Main food security dimension of focus: Accessibility, stability

In June 2019, the Canadian Government announced the country's first ever federal Food Policy.²⁵ From a food security perspective, the policy is focused on addressing household-level food insecurity, which includes addressing nutrition deficiency, but also the mental and physical health problems associated with food insecurity.

While the costs of food insecurity have been acknowledged by past governments, policy-level responses had largely been focused on expanding food charity and how best to provide sufficient nutrition to underprivileged parts of society, particularly among northern and indigenous households. Childhood nutrition has also been identified as a focus for food security in Canada, with a National School Food Program being one of the pillars of the Food Policy.

The Food Policy also aims to strengthen local food systems to be resilient, integrated and sustainable, and to facilitate access to safe and nutritious food, primarily for the less privileged. This echoes a number of think pieces produced by Food Secure Canada, an alliance of Canadian organisations and individuals, that has pushed for increased food sovereignty and food self-

²² Cabinet Office [UK] (2018) Public Summary of Sector Security and Resilience Plans 2018

²³ Lang et al (2018) Feeding Britain: Food security after Brexit

²⁴ Houses of Parliament [UK] (2017) Security of UK Food Supply

²⁵ Government of Canada (2019) Food Policy for Canada

sufficiency in Canada. Food Secure Canada focuses on the idea of “food as a right”, wherein access to nutritious and acceptable food should be available to all.²⁶

UNITED STATES

Main food security dimension of focus: Accessibility, adequacy

Food security in the United States is heavily focused on access to and delivery of proper nutrition to all parts of American society, but with a particular focus on children and disadvantaged parts of the community.²⁷ According to the Economic Research Service (ERS) of the United States Department of Agriculture (USDA), a reported 11.8% of US households (15 million households or 40 million people) were food insecure at some time during 2017.

This can be further broken down into households that have low food security and households that have very low food security. Among households with children, 15.7% of households with children have low food security with 7.7% of the children being food insecure.²⁸ The prevalence of food insecurity varied considerably from State to State, ranging from 7.4% in Hawaii to 17.9% in New Mexico over the period 2015-17.

The Food Nutrition Service (FNS) under the USDA is a federal agency focused on giving nutritional aid to people suffering from food insecurity (which impacts an estimated 20% of Americans).²⁹ The FNS delivers 15 domestic nutrition assistance programs, including the Supplemental Nutrition Assistance Program (SNAP), the National School Lunch Program (NSLP), the Special Supplemental Nutrition Program for Women, Infants and Children (WIC) and the Food Assistance for Disaster Relief program, amongst others. In the 2017 USDA survey, 58% of the households that were identified as food insecure were found to have used one or more of the three largest programs (the SNAP, NSLP and WIC respectively).

JAPAN

Main food security dimension of focus: Availability, stability

The food security policy in Japan has been heavily influenced by the historical experience of the country during and following World War II – as such, the country’s food security policies have been heavily focused on ensuring a degree of self-sufficiency of food production in the country.³⁰ This is despite Japan being a relatively rich country that is one of the largest importers in the world – Japan is not concerned with affordability of food (the 2007-08 food price crisis had limited impact on food

²⁶ Food Secure Canada (2015) Resetting the table: A people’s food policy for Canada

²⁷ USDA (2018) Household Food Security in the United States in 2017

²⁸ USDA (2018) Household Food Security in the United States in 2017

²⁹ ArcGIS (2018) Food security policies in the United States

³⁰ Hirasawa (2017) Formation of Japan’s food security policy: Relations with food situation and evolution of agricultural policies

imports into Japan), but it is acutely concerned by food 'availability' and the stability of sufficient physical supply.³¹

Japan's imports are very dependent on a number of key source countries. Grain and legume imports from the US represent more than 25% of Japan's total agricultural imports. ASEAN, China and the EU are the next largest supplier group, with a combined share of over 39%. Meat is the largest agricultural import and, based on the value of those imports, Japan is the largest meat importer in the world.³²

The need to maintain a baseline level of domestic production is at the heart of Japan's national security, and as such, forms a critical part of its food security policy. The country aims to increase its level of food self-sufficiency to 50% by 2020, and has implemented a number of protectionist policies to achieve this.

These measures include subsidies, such as cutting the price at which the government sells imported wheat to domestic flour millers by 23%, and the application of tariffs on imported foodstuffs such as frozen vegetables from China, which constitute over half the vegetables consumed in Japan. However, there is an acknowledgement that Japanese tastes have become more varied, and as such, Japan will continue to be dependent on imports to meet its food and nutritional demands.³³

SWITZERLAND

Main food security dimension of focus: Acceptability, stability

Despite being a relatively resource-poor but income rich country, Switzerland's food security policy has been highly focused on establishing food self-sufficiency, and in recent years, food sovereignty, which was added to Swiss Agricultural Law in 2013.³⁴ Switzerland provides significant subsidies to local farmers, production quotas are in place for some commodities and the country places some of the highest tariffs in the world on imported food products. This heavy focus in domestic production is evident in Swiss consumption trends - 72% of domestic consumption was sourced from domestic producers in 2010.³⁵

While the result of these policies is that Switzerland has some of the highest nominal food prices in the world³⁶, retail food prices remain relatively low from a purchasing parity perspective and less than 9% of the average family budget is spent on food.³⁷ In practice, Switzerland essentially practices a policy of food self-reliance, with imports being financed by trade agreements that ensure market access for Swiss industrial goods and service exports into food exporting countries.

³¹ Hindmarsh (2017) Is food security a contemporary national security issue for Japan?

³² Hindmarsh (2017) Is food security a contemporary national security issue for Japan?

³³ McKinsey (2017) Food security in Japan: building a strategy in the age of global competition

³⁴ Häberli (2014) Swiss Policies for More Food Security

³⁵ Häberli (2014) Swiss Policies for More Food Security

³⁶ Swissinfo (2018) Switzerland has most expensive food and drinks in Europe

³⁷ Häberli (2014) Swiss Policies for More Food Security

Despite having relatively few concerns about food security, questions have been raised about the impacts the suite of trade policies has had on the Swiss food supply chain (including farmers, input providers and processors) who are largely uncompetitive in the global market, and the impacts this could have on long term food security of the country. Some have also suggested a need for Switzerland to regionalise its strategic stockpiling strategy and have its regions to stockpile essential foodstuffs as emergency reserves to improve the country's food security.³⁸ Strategic stockpiling is currently undertaken on a national scale.³⁹

NETHERLANDS

Main food security dimension of focus: Accessibility, acceptability, stability

The Netherlands is a major agri-food producing country and one of the richest countries in the world. Given the importance of the food sector in the country, the Netherlands is unique amongst all the countries in our review in that it is the only country whose food security policy places a major focus on the country's role in addressing global food insecurity.

This interest in global agriculture and food security started in 2008 and culminated in food security being made a key pillar in the Netherlands' development cooperation policy introduced in 2011 by the Ministry of Foreign Affairs and the Ministry of Economic Affairs.⁴⁰ The objectives of this policy were:

- to increase agricultural production while improving sustainability
- to improve access to nutritious food for the most vulnerable people
- to improve the enabling business environment and market functioning in developing countries.

The policy was updated in 2014, covering largely the same objectives, but with more emphasis on sustainable food systems and on nutrition-specific activities. Since then, it has also had the aim of contributing to two global food security challenges: reducing hunger and malnutrition in the short to medium term, and making food systems sustainable and resilient, in order to be able to feed the world in the long term.

³⁸ Häberli (2014) Swiss Policies for More Food Security

³⁹ Federal Office for National Economic Supply (2015) Report on Strategic Stockpiling 2015

⁴⁰ Ministry of Foreign Affairs [NTH] (2017) Food for thought – Review of Dutch food security policy 2012-2016

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