SCAN Newsletter

Spring 2022

Food

Food Exports

% of total NZ production

Dairy	95%
Beef	87%
Sheep	95%
Kiwi Fruit	90%
Seafood	73%
Onions	85%
Apples	86%
Wine	85%
Honey	46%
Bottled Water	17%

Essential to Human

For:

- Growth & development
- Provision of energy

Food in New Zealand Agriculture

NZ grows enough food to feed 40 million people.

50% of our land is used for agriculture & forestry (World Bank 2020)

84,700 people in a workforce of 2,896,738 are employed in agriculture (2021).

Food and fibre exports make up 81.4% of New Zealand's total exports and are on track to earn a record $52.2 billion (June 2022, https://www.beehive.govt.nz).

NZ has a more complex food system than most developed countries because we rely on it to create wealth.

Almost 40% of NZ households, 20% of NZ children, experience food insecurity.

33% moderate food insecurity

7% low food security (Dr Rebekah Graham).

Links to Articles

Food Insecurity

https://www.stuff.co.nz/national/300695953/if-only-they-made-better-life-choices--how-simplistic-explanations-of-poverty-and-food-insecurity-miss-the-mark

https://www.stuff.co.nz/life-style/food-drink/300707036/we-cant-garden-our-way-out-of-a-costofliving-crisis-and-nor-should-we-have-to

https://www.1news.co.nz/2022/10/15/rising-food-costs-push-people-into-homelessness-salvation-army/

We are exporting high nutrient proteins & fat and importing carbohydrates and sugars.

Export prices push up prices charged for food in NZ.

There are growing calls to feed the 5 million first, brought into focus during the pandemic. Why can a growing number of people not afford food in the land of plenty?

Problems created by intensive agriculture

Our agricultural system is putting significant pressure on some of our natural assets particularly water, primarily through accelerating use of fertiliser.

The use of synthetic nitrogen fertiliser has enabled the intensification of dairy farming which has increased pollution and particularly diffuse nitrogen pollution from urine patches.

Parliamentary Commissioner for the Environment 2013: Water quality in New Zealand: Land use and nutrient pollution.

Fertiliser use: NPK

These 3 chemical elements are essential for plant growth.

Phosphorous (P)

Phosphate rock is primarily treated with sulphuric acid to produce phosphoric acid, which is either concentrated or mixed with ammonia to make a range of phosphate (P205) fertilisers.

NZ's pastoral soils are naturally low in phosphorus and sulphur both of which are provided by superphosphate fertiliser.

Superphosphate use has declined since its peak in 2003-2005 due to a significant rise in its price in 2008/8 (USA heavily invested in biofuel production) and the downturn in prices for sheep & beef.

Superphosphate is non-renewable.

70-87% is mined in Western Sahara where Morocco has seized control of 80% of the land. NZ is the only remaining democracy to source its Phosphate from Western Sahara because they say replacing its specific chemical properties which are suited to NZ, is difficult.

Dairy uses 36%, Sheep/Beef 57%, Horticulture 1%

Surplus nutrients, from livestock excrement & fertiliser use, not absorbed by plants can enter the soil and drain into groundwater and run off into freshwater bodies such as streams, rivers, and lakes.

This can negatively impact freshwater quality by promoting algal blooms, excessive plant growth, as well as eutrophication that can degrade water quality and impact mahinga kai (natural food resources) habitat and species.

Excess nutrients in waterways can lead to reduced oxygen levels and change the composition of plant and animal communities.

Potassium (K)

The majority of world potash resources are found in subsurface bedded salt deposits, which formed when ancient inland oceans evaporated and the contained potassium salts crystallised. Most potash is recovered by underground mining methods.

The largest deposits of potash are in Canada (Saskatchewan), Russia and Belarus.

NZ until recently sourced its potash from Belarus but due to political instability, is turning to Canada for supplies.

Dairy uses 56%, Sheep/Beef 31%, Horticulture 6%

Nitrogen (N)

Prior to 1990 pastoral systems relied on clover to fix nitrogen.

Between 1991 and 2019, estimates from sales data, of nitrogen applied to land in fertiliser, increased from 62,000 to 452,000 tonnes (just over a sixfold increase, 629 percent).

Urea is the dominant form of nitrogen fertiliser used.

Urea is manufactured synthetically by reacting natural gas, atmospheric nitrogen and water together at high temperature and pressure to produce ammonia and carbon dioxide. These gases are then reacted at high temperature and pressure to produce molten (liquid) urea.

Kapuni plant in Taranaki, owned by Ballance Agri- Nutrients, in 2017 produced 277,225 tonnes of Urea, using natural gas from Maui gas field.

640,512 Tonnes was imported from Saudi Arabia, Malaysia, China, The Netherlands

Dairy uses 63%, Sheep/Beef 28%, Horticulture 2%

Other environmental problems include:

Sedimentation in water ways due to land clearing

Garden Tips Substitutes for NPK fertiliser

Phosphorous

Eggshells, banana skins mushrooms, bone meal

Potassium

Kelp

Nitrogen

Manure - horse, cow, goat, sheep, chooks
Human urine - have a pee bucket in a shed, instead of going inside to the toilet.

Dilute 1:10 before applying.

Saving these items will reduce food waste as well as providing the essential elements for your plants.

Removal of Riparian shading –

Most aquatic life in New Zealand's waterways developed in heavily shaded forest conditions. When vegetation is removed from the banks of waterways, the amount of available shade is decreased so the temperature of the water increases, as does the growth of algae and aquatic weeds. Oxygen levels in the water also reduce as the temperature rises. This makes conditions for native aquatic life less than optimal. Riparian areas are also an important habitat for many types of native fauna, whose habitat may be destroyed by the removal of the vegetation.

Biodiversity Loss -

due to invasive weeds and pest animals from accelerating land use change, and the high level of agro-chemical inputs which:

- Impact on the hydrological cycle as toxins run off into the waterways and end up accumulating in the groundwater and marine environment
- Pollute the soil with the accumulation of heavy metals
- Eradicate insects and beneficial pollinating species which are integral to productive land systems

Food for Domestic Consumption

10 key vegetables are staples of the NZ diet.

Vegetable	% Exported	Growing Region
Potatoes	6%	Akl/Waikato/Wang/Cant
Carrots/Parsnips	9%	Canterb/Manaw/Sthlnd
Broccoli/Cauli	1%	Akl/Manawatu/Canterb
Cabbage	3%	Akl/Manawatu/Canterb
Kumara	1%	Northland
Lettuce	1%	Akl/Manawatu/Canterb
Onions	90%	Akl/Waikato/ Canterb/HB
Tomatoes	4%	Nthlnd, Akl, BOP

Outram was once a large market garden/orchard area. Now only a few smaller market gardens remain. Dunedin's produce comes mostly from outside the area The land is instead used for lifestyle blocks and pasture.

Food/eating facts & stats

New Zealanders eat 1,800 tonnes of fruit & vegetables per day.

Estimated percentage of distribution based on annual household expenditure of fresh produce

43% Ready to eat food

29% Restaurant meals

28% Supermarket i.e.

home cooked meals

One third of NZ adults are obese. A further 35% are overweight

Of the 10 key vegetables NZers consume, most are grown here i.e., only 0.1% is imported.

Of our exported vegetables most go to Fiji, French Polynesia, Samoa, New Caledonia, Japan

Problems facing New Zealand Horticulture

Of the 5.5% of land appropriate for vegetable production in NZ, one tenth has been subdivided for life -style blocks in the past l5yrs.

Water and land are key to horticulture.

Competition for land for housing and for availability of highly reliable water sources and water quality constraints.

An example is Pukekohe, a key horticultural region.

It sources water from ground water and the Waikato River both of which there's competition for from municipal and industrial users. Water is allocated on a first come first served basis so water for food is competing with all other uses of water. It is not elevated in status to ensure that domestic food supply is maintained.

Our current consumption levels of fresh produce in retail and food service shows that net production is already below what is required for domestic consumption, meaning we can expect food shortages.

New measures have recently implemented to protect horticulture land: (although there are exceptions which could become loopholes to sidestep the laws)

https://www.beehive.govt.nz/release/government-enhances-protection-our-most-productive-land-%C2%A0

Unlike other countries, NZ has no food security policy. Land loss, climate change, competition for water resources, extreme weather events & the constant threat of pests and diseases all threaten NZ's food security.

New Zealand Food Imports

NZ imports all rice and most of its wheat and is a net importer of pork products. (Dec 2019)

Horticulture imports in order of value:

Wine, nuts, processed vegetables, coffee, bananas, table grapes from Australia, China, USA, Ecuador, all countries that may be less resilient to climate change than NZ.

UN Food & Agriculture Organisation

Rising temperatures, rising seas, increasing frequency of adverse extreme weather events will interact to reduce agriculture and horticulture productivity.

UN Office for Disaster Risk Reduction

NZ is unlikely to experience food shortages in the near future due to climate change although will likely experience escalating prices and/or reduction in availability of imported foods.

Food Waste in New Zealand

Office of the Prime Minister's Chief Science Advisor

New Zealand households produced almost 300,000 tonnes of food waste for kerbside collection in 2018, equating to a median average of 164 kg per household per year.

The study included an analysis of the composition of household food waste, finding that 52.8% (around 157,000 tonnes) was avoidable (i.e., food waste that could have been eaten at some point),

13.5% was potentially avoidable (i.e., parts of food that some people eat - e.g., potato peels),

and 33.7% was non-avoidable (i.e., parts of food that are unlikely to be eaten by the majority of the population -e.g., banana skins, eggs shells, teabags).

Of the avoidable food waste, bread was the most wasted product by volume (9.6% of avoidable food waste), followed by leftovers (8.2%), with all other food categories each making up less than 5% of the avoidable waste volume.

The value of avoidable household food waste was found to be $644 per year on average.

A limitation of this study is that it only captured food waste disposed to landfill, excluding waste disposed of using in-sink disposal units, compost bins, worm farms, fed to pets, or via other pathways.

Therefore, the total food waste volume of almost 300,000 tonnes likely underestimates the true extent of household food waste.

Govt funds for food waste initiatives

- Love Food Hate Waste - an ongoing national education campaign which provides resources, recipes, and tips to help households reduce their food waste.
- Kai Ika - A collaborative project which collects fish heads, frames, and other previously discarded fish parts, and redistributes these to families and community groups in Auckland who value these fish parts. Today, the Kai Ika project distributes more than two tonnes of fish off-cuts a week.
- Kiwi Harvest - a food rescue organisation that works with food businesses across

Efforts to Combat Food Waste in NZ

Efforts to combat food waste are typically framed in relation to the food recovery hierarchy, a modified version of the standard waste management hierarchy.

According to the food recovery hierarchy framing, actions to prevent food waste e.g., by designing waste out of our food production processes and empowering consumers to engage in shopping, cooking, and eating practices that are free from food waste

should be prioritised, as this is generally where the most environmental, social, and economic benefit can be delivered.

Failing prevention, any quality, safe, edible food i.e., surplus food should be rescued for human consumption,

and edible by-products or components of food should be repurposed ('upcycled') into new food products for human consumption if possible.

Only when food isn't suitable for human consumption should diversion interventions lower in the food recovery hierarchy be pursued, such as use as animal feed, material recycling, recovery of nutrients, or recovery of energy, typically in that order.

Disposal should be the last resort, but ideally avoided.

With surplus food and food waste having multiple possible destinations, the food recovery hierarchy helps to clarify and prioritise options for food waste reduction and management.

… such as oversupply or simply nearing its best-before or use-by date.

To date, KiwiHarvest has rescued over 6,000 tonnes of food.

MSD provides support for the food rescue sector through its Food Secure Communities programme to:

- New Zealand Food Network
- Aotearoa Food Rescue Alliance
- IKore Hiakai Zero Hunger Collective

Initiatives to Increase Food Resilience in New Zealand

What is food resilience?

Resilience is the ability to prepare for, withstand, and recover from a crisis or disruption.

A resilient food system is able to withstand and recover from disruptions in a way that ensures a sufficient supply of acceptable and accessible food for all.

https://www.localisingfood.com/index.php

https://ediblecanterbury.org.nz/our-story-2/

https://enm.org.nz/manawatu-food-action/About-MFAN

https://www.sustainabletaranaki.org.nz/communitystories/2020/11/10/food-resilience-lets-talk

https://www.northeastvalley.org/your-community/valley-kai

https://wellington.govt.nz/climate-change-sustainability-environment/sustainable-living/sustainable-food-initiative

https://localfoodnorthland.org/about/

Most cities, towns and even some very small villages in NZ have community gardens.

Guide to starting a Community Garden:

http://www.ccga.org.nz/uploads/Guide_to_starting_a_Community_Garden.pdf

Vegetable Gardening Clubs, such as Dunedin Vegetable Garden Club,

http://dvgc.co.nz/

http://www.seniorsclimateactionnetwork.org

https://www.facebook.com/groups/964056880274284