

Vision

The year is 2040 in Aotearoa New Zealand...Food loss and waste is still something we deal with, but mostly we can prevent wasting food that is good to eat, and have found sustainable and regenerative ways to utilise inedible parts of food or food that's unsafe to eat – like nutrient recovery that replenishes the soil. Sometimes unpredictable things happen, like a cancelled export order, but we are prepared for uncertainty and keep that food for people through our food rescue networks. Our public and private sectors have been working together strategically for over a decade, coordinating priorities for policy, funding, infrastructure, and collecting data to support reduction of food loss and waste, and minimise its harms.

New Zealand's healthy and sustainably produced food products are world leading. Our farmers are a source of national pride, producing a diverse array of fruit and vegetables, grains, nuts, and animal products. A significant amount of this premium produce is exported, but there is plenty for New Zealanders as well. We only import what we aren't able to sustainably grow here, and local products are staple ingredients for food service and households, particularly those which are in season. Not only does this make our food system more resilient, but it shortens our supply chains and reduces waste. Through Government support and incentives, even small and medium enterprises are able to optimise their crop management technology. Technologies such as refined plant breeding, strip picking, and mechanised harvesting, as well as digitalised crop management and AI-supported harvesting technology to help refine decision making, mean much lower proportions of crops are unmarketable when harvested. Particularly in domestic supply chains, this is also aided by a generally wider consumer acceptance of crops in different shapes and sizes so a wider range of produce is considered marketable. Producers also have access to a digitalised material flow platform, so they know what leaves their business as food or as waste and where it goes, and can make use of this live data for decision making. This platform also makes it really easy for them to input all their emissions, economic, and food loss and waste reporting, so they have more time to get on with farming.

Local manufacturers have implemented digital systems to monitor their production, resulting in more efficient processes and significantly less waste. Packaging has moved away from soft plastics to compostable materials that use active or intelligent design to promote optimal storage conditions and keep food fresh and safe for longer. There are precise product tracking capabilities with new quick response (QR) codes and radiofrequency identification data (RFID) that enable complete transparency across the supply chain, specific tracing for events such as recalls, and access to detailed information for consumers. Thanks to innovations by our world-leading food scientists, by-products and damaged (but perfectly edible) produce are routinely upcycled into new, nutritious products, such as bread made with spent grain from breweries, increasing food supply and reducing unnecessary waste.

The challenges of climate change, biodiversity loss, contaminated waterways, dependence on synthetic fertilisers, and a changing market for animal products created opportunities to diversify and minimise food loss and waste across the supply chain. This has enhanced our reputation for exporting sustainable products. Investment in science and technology, strongly connected with deep expertise on farms, has allowed us to become world leaders across an array of export products.

Much of the inedible or unavoidably lost parts of our grain crops, as well as some loss from our horticultural crops, are used to feed livestock animals – gone are the days when we relied on imported animal feed and our arable land now grows high value crops for human consumption.

The terms of trade between retailers and producers equitably balances risks across the supply chain, reducing incentives for wasteful overproduction. Supermarkets use state of the art forecasting and easily communicate dynamic changes to their supply streams, based on AI-models that reliably predict consumer demand. They also take the lead on food loss and waste reduction, not only within

their own businesses, but with their influence across the supply chain. There are many more places for us to obtain our food from now, with lots of alternative models for low waste meal kits and meal delivery services, as well as an abundance of farmers' markets and community supported market gardens where consumers connect directly (and share the risks) with producers, so they only grow what is needed for the local market.

These gardens are a fantastic place for school children to learn about food and agriculture, and many more school leavers seek employment in farming and food than was the case at the beginning of the century. Across the supply chain, the incentives to push consumers to buy more are reduced, instead connecting them with their food and its producers in a way that empowers consumers to pay fair prices for what they need and produce less food waste at home. Consumers are supported to make good decisions about when to discard food, with best before dates replaced by sensible guidance on when things are still good to eat.

Awareness of the benefits of reducing food waste is widespread, thanks to targeted campaigns and a generation of school children who benefitted from the food waste prevention schemes introduced in schools. People are storing their food more appropriately, buying the right amounts, eating their leftovers more readily, and know how to use date labelling as well as their own senses to only eat food that's safe. In some households, people grow their own food and compost any waste; others are part of community garden compost systems. Kerbside collection for food scraps is routine, with commercial composting and anaerobic digestion facilities established across the country for those who prefer to opt-in to the centralised system. Nutrients and energy from these facilities are captured and reused routinely, and all the facilities are certified as carbon neutral.

Community networks that connect people with surplus edible food to people who want it or know how to preserve it are supported by national guidance on food safety and supply chain logistics. In cities the sharing economy is booming, with proliferation of sharing apps and social enterprises to connect surplus food to hungry people. The amount of food loss and waste that ends up in the compost or in the kerbside collection bin is far less than it was 15 years ago, and not all end-of-life composting and anaerobic digestion facilities need to be replaced.

When international supply chains are disrupted by increasingly frequent weather events, farmers and consumers are resilient because our food system has diversified, and mechanisms are in place to rescue the food and support the farmers who supply it. Export markets may be temporarily cut off or disrupted, but domestic markets are resilient. Digitalised logistics enable producers with surplus to be connected quickly to processors with capacity to turn this into upcycled food products with longer shelf life. Our accurate forecasting and planning abilities, largely due to our secure and trusted database systems, integrated with AI, help us to make better logistical decisions.

All in all, New Zealanders value food and the unique food culture we have developed. We teach our children where food comes from and how it comes to be on our plates, and they turn into adults that respect and protect the people and places that provide our food. Aotearoa has a food system that supports the production and delivery of sustainable, safe, nutritious food both to New Zealanders and to export markets. We have met our carbon reduction and sustainable development goals, in large part, due to the excellent way we have transformed our food loss and waste situation. New Zealand has an international reputation as a food producing nation largely without food loss and waste.