

# Future of Food

## Seeing red

Can red meat  
recover its  
glorious past?



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# Seeing red

The sheep and beef sector is in a fight for its life. Can red meat recover its glorious past?

**Sheep and beef farming were once the core of the New Zealand economy.** In 1920 they helped make New Zealand the richest country, per capita, in the world. But as dry-stock farms struggle for profitability, and parts of the world reach ‘peak meat’, can the industry recover past glories? What is required to thrive? We look at the threats and the opportunities ahead.

**Threat:** The red meat industry operates on thin margins and just a small fall in demand can lead to extreme financial challenge across the sector and challenge the future viability of this sector for many.

**Opportunity:** Most people still eat red meat as a part of their weekly diet and New Zealand is well positioned to grow beef and sheep meat better than anyone else. By trading as nature-positive and with a compelling ‘food story’ could we be the premium player in global protein markets.

### Key points:



Red meat faces four major headwinds: changing consumer demand, China’s slowdown, trade protectionism and new protein technologies



Red meat is not necessarily bad – it’s globally perceived as badly grown and badly served



New Zealand is uniquely placed to build on its grass-fed advantage to be nature-positive



Disruption of the red meat sector with new and novel proteins may still be decades away but is a real threat as many companies globally are working on new alternatives



Innovation helped New Zealand farmers shift from volume to value; it can help make even more from less as co-products from the cow become increasingly valuable



It’s time to create a rich New Zealand food story that is science-informed, built on te ao Māori principles, spirited in tone and sourced from pure, local ingredients

## Two headlines, two different stories.

In April, Nadia Lim and her partner Carlos Bagrie were pictured standing smiling in a warm wheat paddock in Wanaka, proud owners of the Royalburn Station, a sheep and grain farm founded in 1845. Lim's shift, from celebrity chef and co-founder of My Food Bag to farming entrepreneur made the pages of all the major outlets, TV news and Farmers' Weekly. There's a TV show too, now in its second season.

It's a heartwarming story. Bagrie and Lim are creating the kind of regenerative farm that New Zealanders dream of. "Bees pollinate, so clover is grown for seed production, while barley straw, wheat straw and chicken manure are used to produce compost, which was then used in the market garden," wrote Stuff.

The pair have built an onsite abattoir to process the stock. Produce is sold direct to the public at the Royalburn Farm Shop in Arrowtown and to high-end restaurants. They won the Primary Sector Award at the 2023 New Zealand Food Awards for their Royalburn Fine Lamb.

"We'd never move back to the city now," Lim told The Spinoff. "We say to our kids every dinner time 'you boys have no idea how lucky you are that we have all our own food here', and they just go 'yeah yeah whatever mum'."

Five months later, newspapers carried a different story: the likely closure of the Smithfield sheep processing plant in Timaru. Some 600 jobs are to be lost and a major asset for the region mothballed. Some blamed the rise in forestry, encroaching on productive land. Some blamed a rise in regulation or a decline in demand. Everyone blamed high interest rates.

They're all right. Alliance, the farmer co-op and owner of Smithfield posted a \$97.7 million loss the previous year off the back of falling sheep numbers and a slump in overseas demand. Forestry is growing, as farmers seek alternative revenues. High interest rates, energy prices and compliance costs have hit businesses hard.

The image of farming we'd like to imagine is more like Royalburn Station – diversified, healthy, family-owned and successful. But is it more like Smithfield – a business model that needs innovation to evolve.

## Growth industry

It's no exaggeration to say that New Zealand was built off the sheep's back. Thanks to this glorious woolly beast, we became one of the most prosperous nations on Earth, the world's largest exporter of lamb, a global leader in wool and genetics, and home to Shrek, the world's woolliest sheep.

There were once 22 sheep for every citizen, with numbers peaking in 1982 at 70 million, and while numbers have fallen dramatically since then, forecast to be just under 24 million by the end of 2024, we still have a record five sheep for every person. There are 16,000 sheep and beef farms and we remain the world's largest exporter of lambs.

Sheep is still big business.

And even though headcount has plummeted, the total revenue for lamb has grown, reflecting an almost doubling of productivity since 1990. That's a result of better genetics, better farm management and smarter marketing.

# *Get it right and New Zealand could tap into a hungry market – after all, the world loves meat.*

It's a story repeated by other meats. In the last 20 years, beef exports have grown to \$4.6 billion from \$1.8 billion, yet the total herd has fallen from 4.7, to 3.6 million. Deer numbers have shrunk by a million to about 750,000, yet venison revenues have grown slightly.<sup>i</sup> The meat sector has done a credible job of generating more value from less volume.<sup>ii</sup>

But is it enough?

Behind those impressive numbers are worrying signs. The latest report from industry body Beef+Lamb shows that farm profit is forecast to decrease 7.4% to an average of just \$45,200 per farm. That's a whole lot of effort for very little return.<sup>iii</sup>

A collapse in wool prices has added further economic stress. Once a miracle fibre, fulfilling half of New Zealand's exports, wool has been displaced by synthetic alternatives and is struggling for relevance. Since 2004 the export value of carpets and wool products has dropped by two-thirds. Every summer we see the tragic sight of wool fleeces discarded for want of buyers.

With consumption falling among our traditional trading partners due to health and environmental concerns, can New Zealand's red meat sector flourish again?

"I think New Zealand sheep and beef farms have got an amazing story to tell, creating incredible products and doing amazing things for the environment and for their communities," says Nick Rowe, Innovation Manager at Silver Fern Farms.

"But it feels like a little bit of a point of inflection at the moment. We have yet to prove whether we can be successful in leading change throughout the value chain to optimise core business and at the same time create significant future growth. All innovation carries risk. But I know if we succeed this industry can flourish again."

Get it right and New Zealand could tap into a hungry market – after all, the world loves meat.

According to Coriolis<sup>iv</sup> over 7.5 billion people across 195 countries eat meat, making it the sixth largest food source by volume. The average person consumes about 45 kg of meat per year, or roughly 123 grams per day. "With an additional 1.5 billion consumers expected in the next 25 years, primarily in Africa and Asia, meat consumption is set to rise further."

So, what's the problem? And can it be overcome?

## **Heavy weather ahead**

It's tough business farming cattle. Spend any time on a farm and you soon appreciate the grit required to land that sirloin on your plate. From fencing and drenching to battling storms, environmental regulations, labour shortages and high interest rates — farming is heavy weather.

For the red meat sector, the headwinds are getting stronger. There are four storms.

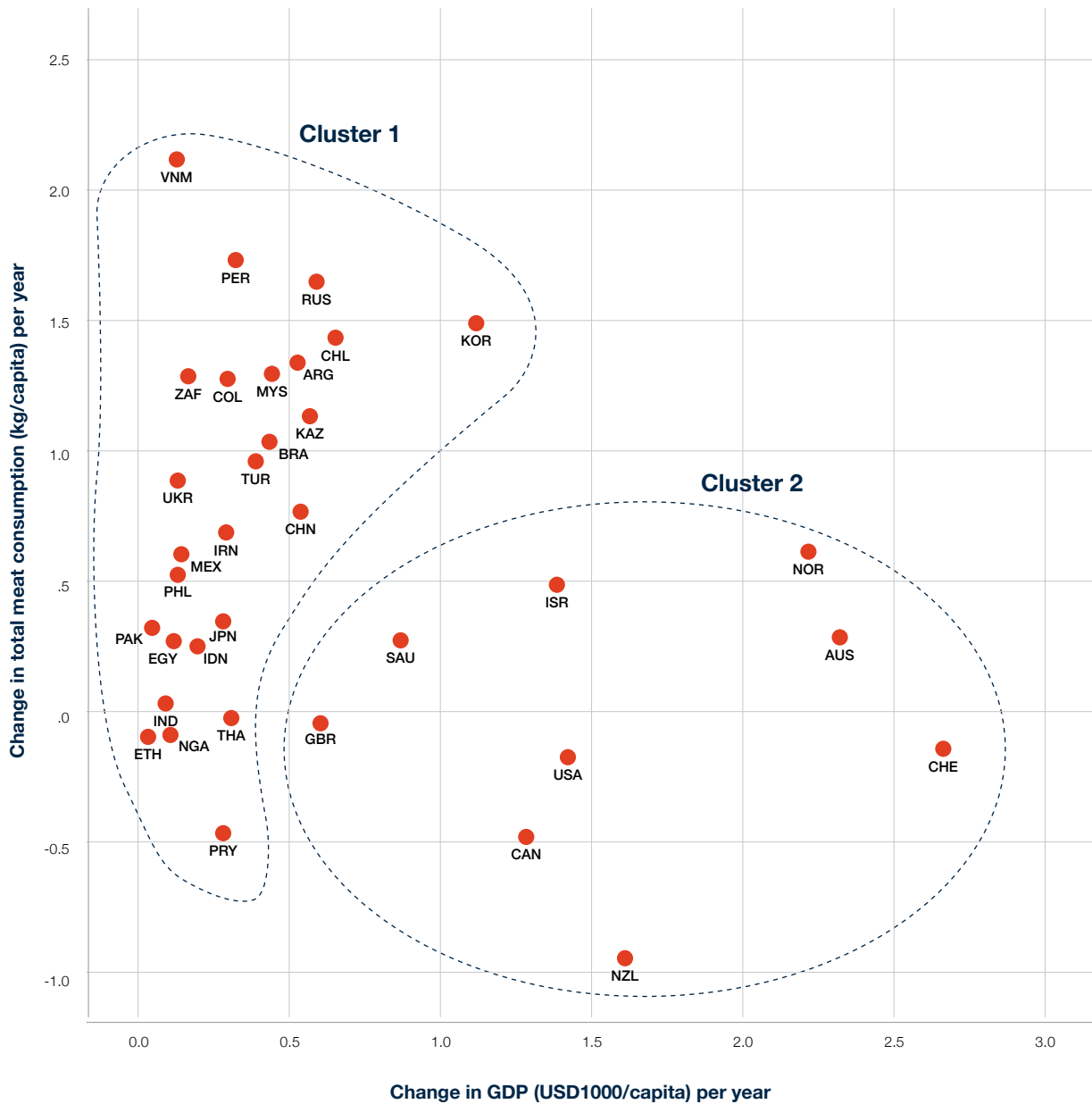
First, there's evidence that many of our key trading partners may have reached peak meat. Consumption has been declining since the early 1980s in the UK, Australia, Europe and the USA, with a concurrent growth in pork, poultry and ready-made meals.

It seems that the richer we get the less meat we consume.

An Australian study found a strong correlation between national incomes and a decline in meat consumption. As Figure 1 illustrates, developing countries trade up into meat as they get wealthier (for example Vietnam), but then there is a tipping point where this changes (for example Korea): "There was evidence of a tipping point around US\$40,000 of GDP per capita, after which increases in economic well-being do not lead to increased meat consumption".<sup>v</sup>

*It seems that the richer we get the less meat we consume.*

Figure 1. Changes in total meat consumption and changes in GDP





# Convenience is killing the cow.

The study attributes the decline to health and environmental concerns.

The correlation makes sense. The fall in per capita consumption coincides with women entering the labour force in the 1970s and the subsequent fall in home cooking and food preparation. In 2013, Nutrition Journal<sup>vi</sup> reported home cooking had declined as much as 30% between 1965 and 2007. That trend has continued.<sup>vii</sup> Ready meals have experienced a concurrent growth – serving up far less meat content than a traditional meat-and-three-veg dinner.

Convenience is killing the cow.

And then there's the health concerns. Rightly or wrongly, consumers have received a steady diet of criticism over their meat habits. We're told we're eating too much meat, too much protein and too much fat. Nutritionists link meat to cancer, diabetes and IBS.

The claims are exaggerated and can be damaging in the other direction. Meat is high in nutrients including iron, zinc and vitamin B12. It's a recommended source of protein for all ages and stages, especially for ageing populations. Many nutritionists still recommend meat in a modern diet.

The true culprits are downstream. Yes, that sizzling rump steak is delicious but the very process of frying oils at high temperatures produces harmful compounds. It's also the processing. But like all highly processed foods, processed meat like salamis, bacon and nuggets come with a health warning.

Add to that, the environmental concerns. From a merely rational point of view, meat is an inefficient way to source protein. Producing only 18% of the global food supply, livestock currently uses 77% of all agricultural land. Land is diverted from human consumption to feeding animals in intensive livestock systems globally.

As a result, more than 90% of the proteins are lost.<sup>viii</sup>

Herein lies an opportunity for New Zealand farmers. Our livestock are raised on pasture and free to roam and our farm systems are increasingly adopting nature-positive or sustainable practices. Indeed, by Northern Hemisphere standards, our farms are well ahead when it comes to sustainable agriculture.

“We believe many New Zealand's sheep and beef farming practices naturally align with key pillars of sustainable production. This isn't to say all farms are applying all principles all the time, but in general New Zealand is better placed than other countries to meet these requirements,” argues Beef+Lamb.<sup>ix</sup>

The problem of methane remains unsolved, however. Livestock farming is responsible for 11% of global emissions and combined with dairy amount to just under half of New Zealand's greenhouse gas emissions. In 2019 EAT-Lancet planetary health diet – described as the “first attempt to set universal scientific targets for the food system” – proposed a reduction of more than 50% in global meat consumption as essential to meet below two degrees of warming.

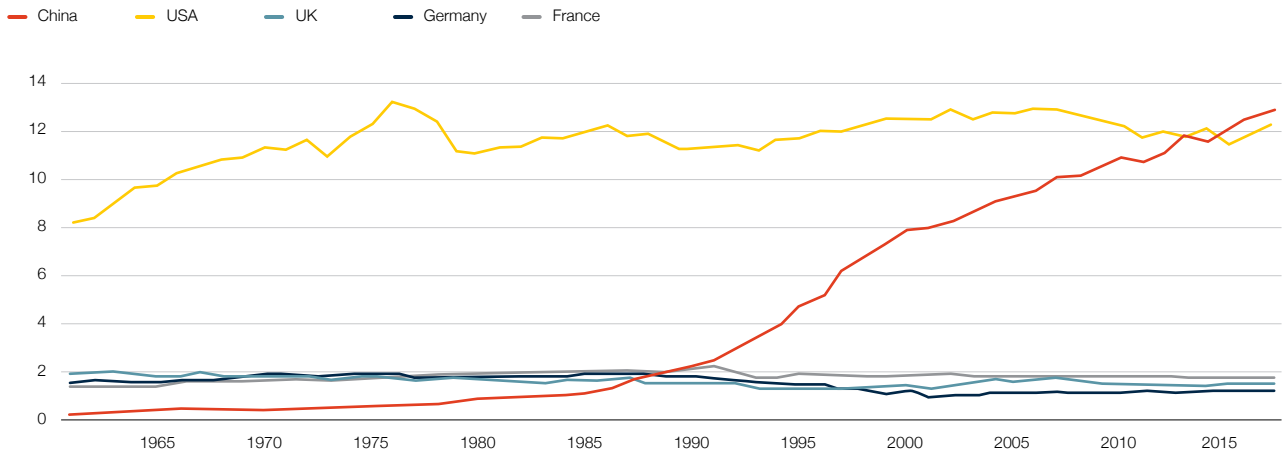
AgriZeroNZ a partnership between the New Zealand government and major agribusiness companies was established to drive down emissions from livestock. Through greater investment, the partnership will drive a focus on game-changing emissions reduction solutions to help farmers reduce emissions and maintain their competitive edge.

While fast-tracking tools for New Zealand's pasture-based farms that will secure the future profitability of exports, global dissemination of tools will ensure global impact is made.

Figure 2. Source: FAO. Chart by Carbon Brief using Highcharts.

### The increase in Chinese red meat consumption dwarfs small declines in Europe

Million tonnes of red meat per year in key economies



Total consumption of red meat (beef, mutton and goat) in key economies, millions of tonnes, based on food supply data. The data is an overestimation of actual consumption as it is derived from per capita “food supply”, which does not account for food waste at the consumer level. The FAO updated its methodology for calculating food supplies in 2014, which it says may result in some discrepancies with previous data.

Australian scientist Katherine Sievert sums up the sentiment: “If you want a quick take-home, it’s this: eat less red meat, avoid processed meat and choose meat farmed under better conditions.”

New Zealand is those better conditions.

## China crisis

Whatever declines we’ve witnessed in the Western world, they’ve been offset by growth in the developing world. Globally, red meat consumption is still predicted to increase 50% by 2050.

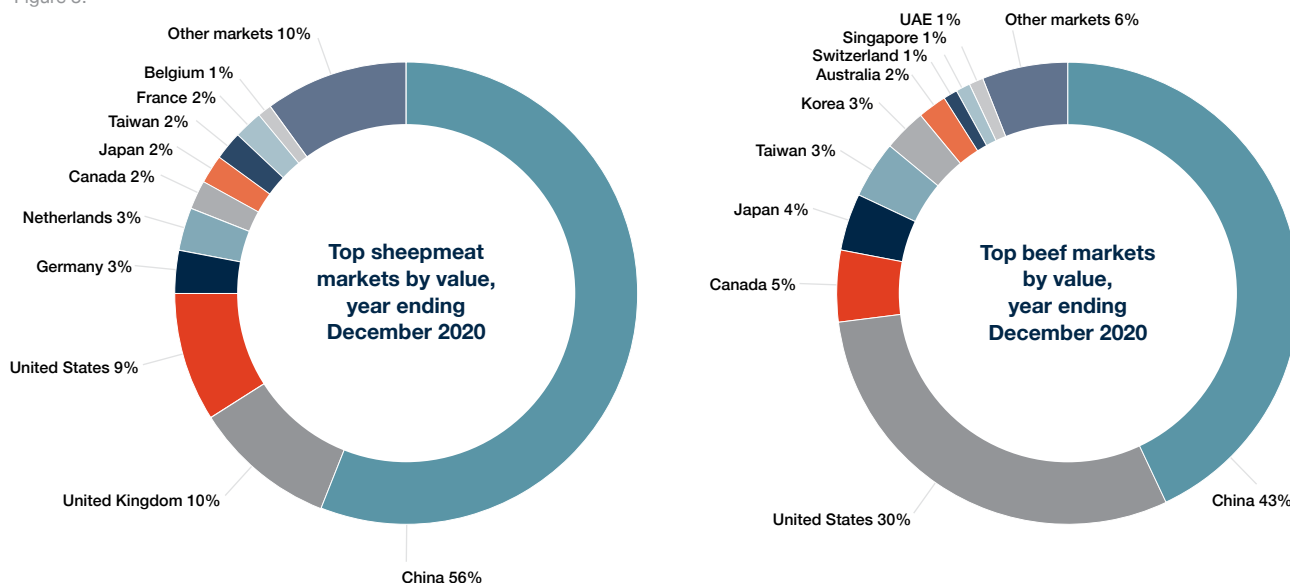
That shift has not been lost on our industry and governments. In response to the United Kingdom entering the EU in the 1970s, New Zealand set about creating free trade agreements, especially in Asia, opening new destinations for our meat. Where once we relied on our friends in old Blighty, we’ve since made new friends in Korea, Japan, the USA and the Middle East. None is more significant than China.

The Chinese middle-class consumes 76 kg of meat per person each year, one of the highest consumers in the world. Supporting meat production has been Chinese government policy in recent decades and almost a third of the world’s meat is consumed there. We’ve enjoyed the upside. From almost zero in the 1990s, China now accounts for approximately 45% of New Zealand lamb, 88% of mutton and 48% of beef exports.<sup>xi</sup>

But even here, habits are changing. After a recent trip to China, Dr Victoria Hatton, CEO of FoodHQ reported seeing a shift in consumer behaviour like Western countries: an ageing population, rise in conscious consumers, decline in home cooking, concerns about health and wellbeing and a slowing of demand for traditional meat, pork especially. Beef is seen as a healthy alternative to pork and New Zealand is prized for its food safety. “The Chinese government is actively promoting the shift from pork to beef. Pork is considered to be a poor man’s meat, produced and consumed when China was going hungry. Now China is wealthy, they are moving from an eat full policy, to an eat well policy” says Hatton.

But China is not the saviour. After a solid annual growth of 4% between 2107-2022, the growth of beef is forecast to halve by 2026. According to Farmer’s Weekly, “word out of China is that it could be another 12-18 months for prices to recover and when they do it won’t be at levels enjoyed in 2021-22.” Hatton adds that “China will be seeking more reciprocity in the trading relationship with New Zealand. It won’t continue to take our meat without expecting something in return. It will be interesting to see what this might be.”

Figure 3.



## Trade winds

Much success for New Zealand relies on our free trade agreements. They've been so successful they're one of the few policies all the main parties agree on. Storms are gathering, however. Protectionism is reversing the gains made in previous decades.

Despite the rhetoric, President Biden has continued with Trump-era tariffs, with a second Trump term now ahead of us, and a hike in tariffs on Chinese imports of another 60%, dragging 2.5% off China's GDP growth. Given our reliance on China that decline would hurt.

The meat trade is under pressure. Globally, red meat trade fell 1.5% in 2023. The FAO says that "much of the decline in the global meat trade in 2023 was reflected in lower exports from a few leading exporters, more prominently the European Union, Turkey, the United Kingdom, the United States and Canada, among others."

## Tech disruption

The fourth threat to the red meat sector comes not from consumers or trade wars but from the lab. Two tech platforms are at play. On the distant horizon is cultured meat sometimes called lab-grown or cellular meat. Working with animal cells, scientists have successfully grown chicken, beef, fish, pork or unusual meats including elk, lamb, bison, and Wagyu beef. In 2013, Mark Post created a hamburger patty made from

tissue grown outside of an animal. Since then, other cultured meat prototypes have gained media attention: the "world's first commercial sale of cell-cultured meat" occurred in December 2020 at a Singapore restaurant 1880, with cultured meat manufactured by United States firm Eat Just, meanwhile, SuperMeat opened a farm-to-fork restaurant in Tel Aviv called The Chicken to test consumer reaction to its cultured chicken burger.<sup>xii</sup>

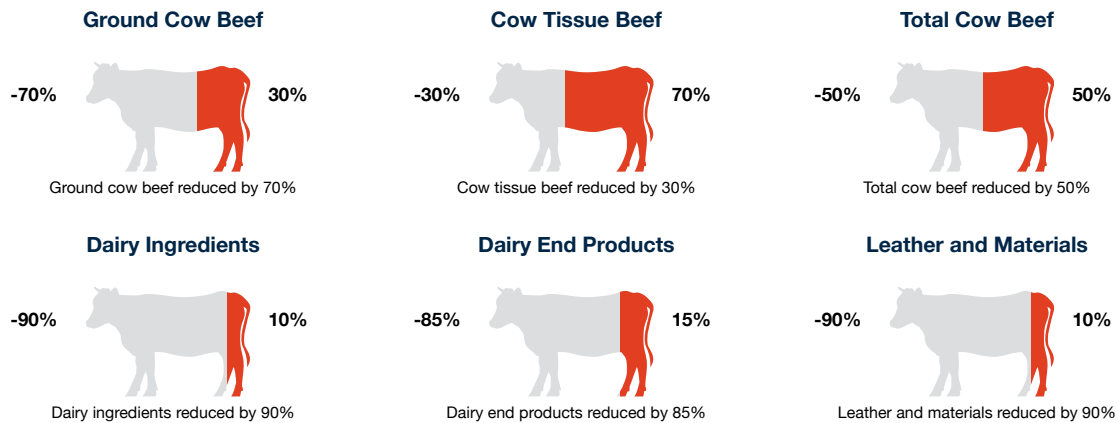
Olivia Ogilvie co-founder and CEO of Auckland-based Opo Bio Aotearoa is an entrepreneur making the most of the trend. Her company is producing cell lines for cultured meat makers around the world. She's not predicting a demise. "We don't see it as either or. We think there's room for both."

What's more, Ogilvie says it won't be happening tomorrow. The challenges of scaling cultured meat to compete with conventional meat are enormous. "I think it's at least ten if not 30 years before the industry could genuinely threaten red meat," she says.

There's subtlety here.

The second disruptive tech is precision fermentation (PF) – the production of proteins in vats in a process like brewing beer. Unlike cultured meat this tech has been established for decades – insulin is produced this way – and is used at commercial scale. Here the threat to the red meat sector is less direct and comes via its cousin: dairy. Whereas meat is complex tissue, consisting of muscle, fats and collagen, dairy protein is comparatively simple. Under 4% of a bottle of milk is protein. Some 87% is water. Hence, we hear talk of 'milk

Figure 4. Cow Use in 2030 Relative to Today. Source: RethinkX



solids' and why we export milk powder. It's possible to produce dairy proteins using PF. In fact, it's happening already in Auckland's Daisy Lab, a start-up developing dairy-identical proteins to be used as food and beverage ingredients at pre-commercial scale. Around the world, PF products are on the shelf. Nestlé uses PF to produce a whey protein for its Orgain brand protein powder labelled 'Better Whey'. Fonterra co-founded a startup called Vivici that, within one-year, commercialised a PF whey protein as a B2B ingredient.

The cow is being disrupted.

"The cow is by far the most inefficient food production technology on the planet," says Tony Seba, the futurist from RethinkX, which predicts the collapse of traditional agriculture in the 2030s.

This is one person's opinion and as a nation that produces superior quality livestock protein, many New Zealanders are likely to disagree with this comment. After all, a cow takes grass and turns it into a nutritious food.

But Seba believes the collapse will come not just from a like-for-like replacement of milk or meat but by nibbling away at the margins. It has already started with ingredients or protein powders, and is slowly moving to ice-cream and yoghurt. The 'cow' industry is a highly integrated ecosystem, made up of verticals - meat, leather, offal, milk, ingredients and so on. Dry stock farming is entwined with dairy. Abattoirs, feedstocks, freight, retail, housing, labour and rural communities - meat and dairy rely on each other.

If dairy suffers, red meat suffers and vice versa.

"Just a small fall in profit can lead to extreme financial challenge across the sector and challenge the future viability of this sector for many."

## The fight for survival: reasons for optimism

Most people find Seba's prognosis surprising, if not baffling. We find it hard to imagine that an industry so old, so established, so important could suffer a Kodak-like moment. Especially as meat consumption continues to grow globally.

Least convinced is the red meat industry which, while acknowledging the four storms described above, is far more optimistic about its potential.

"I do believe that not only can we survive, but we can flourish if we respond correctly," says Nick Rowe, Innovation Lead at Silver Fern Farms, the largest red meat processor. "Despite the challenges that the sector faces - especially from an environmental point of view - most people still eat red meat as a part of their diet through the week."

US researcher and futurist Mike Lee says the demand for protein continues unabated. "I don't see any signs of it slowing down. When I started in the food industry in 2007 it was a trending topic, it hasn't slowed down at all."

Lee has worked with Beef+Lamb and visited New Zealand many times. "Protein is a slam dunk and as a mega-trend it's obviously very relevant to New Zealand's food sector. New Zealand is so heavily indexed around the protein - but you've got to figure out what your conversation is. I'm a firm subscriber to the view that it's not so much that red meat is bad, it's just badly grown and badly served. How can New Zealand do it well?"

Optimists see four ways to build on that opportunity and transition to a more sustainable profitable future.

# *The fact is, red meat's never going to win a carbon intensity battle, right?*

## **1. Better for the planet, better for you**

The first opportunity is to drive sustainability beyond the idea of simply doing 'less harm' to being a positive force for people and the planet. Call it regenerative, call it biological farming, Silver Fern Farms calls it 'nature positive' – a programme of on-farm practices, quality assurance and consumer branding. "It's a really big focus at the moment," says Rowe. "We launched into the US with a branded retail program in 2018 (that was our first Silver Fern Farms branded product in a US supermarket actually) and then, a couple of years ago, with our Net Carbon Zero by Nature product portfolio, which was an intentional shift to lead with sustainability attributes for consumers are eat premium red meat."

Rowe claims it's working. Early signs show the meat attains a higher premium and plays well with major clients such as supermarkets and volume producers of ground beef.

Its aim is to create positive effects on-farm, rewarding farmers for management practices such as encouraging native bush regeneration, fencing waterways, riparian planting and increasing farm biodiversity. Sheep and beef farmers own a remarkable 24% or 2.8 million hectares of New Zealand's native bush<sup>xiii</sup>, the largest outside of the conservation estate. The bush gives the sector an asset base to leverage for carbon and biodiversity credits and a powerful marketing story to fit its ambition "for clean freshwater around farms, for the sector to be carbon neutral by 2050, for sheep and beef farms to provide habitats that support thriving biodiversity, and to support healthy productive soils."

Rowe says the future of Silver Fern Farms relies on that transition. "The fact is, until there are methane reduction tools widely used across the sector, red meat will always be a carbon intense food choice. Through our Nature

Positive platform, we remove the carbon liability of the product, from cradle to grave, through on farm woody vegetation that sequesters that carbon. Over time we will expand beyond carbon, enabling restorative farming practices such as soil, biodiversity and waterway health improvement to become part of our story."

"If we can get to the point where we can prove to people that when they purchase a product from Silver Fern Farms, they're contributing directly to better farm outcomes, that is generating profit for communities and ecological good, this will help support the growth of our global premium red meat brand and return additional value to farmers."

The industry is pushing back on health criticism as well, arguing with nutritional science about the benefits of animal protein over alternatives. With support from the Riddet Institute in Palmerston North and Professor Derrick Moot of Lincoln University, Beef+Lamb is on a major offensive<sup>xiv</sup> to prove the longevity of meat-eating in human evolution and the health benefits to all ages, when consumed in the right proportions and at the right time.

"Meat is a rich source of many key nutrients including protein, iron, zinc and vitamin B12. These are particularly essential in the diets of population groups with higher nutrient needs, including children, adolescents, pregnant women, athletes and older adults," it says in a 2020 report.

In fact, it argues we may not be eating enough. "Recent data from OECD-FAO shows New Zealanders are eating approximately 284g (221g beef, 63g lamb) per week. For those who only eat beef or lamb as their red meat choice, this is well below the recommended red meat intake of 350-500g per week advised by the Ministry of Health and World Cancer Research Fund."

# *Sustainability is a rational attribute. Food is emotional.*

## **2. Food as soft power**

A second opportunity for red meat is to elevate the emotional pull of New Zealand food so high that it becomes a form of soft power. Think of New Zealand food as a brand to compete with Italy or Mexico.

That requires more than sustainability and efficient production systems. It requires a love affair.

“People don’t lean back after a delicious meal and say, ‘wow that was so sustainable’. Says Mike Lee, “They say it was delightful, wonderful, fulfilling, life-changing or whatever. Sustainability is a rational attribute. Food is emotional.”

New Zealand is well positioned to tell a good story about its red meat: grass-fed, free range, with one of the lowest footprints in its category. Our imagery, especially promoted by NZ Story is bucolic: rolling pasture, blue skies, family farms, deliciously plated meals. Beef+Lamb’s platform ‘Taste Pure Nature’ reinforces the themes, as does Silver Fern’s.

It’s all good but it’s not good enough, says Lee.

“There’s a lot of farmers in Italy that could say the same things that you guys say, about how you farm the land differently, take care of your livestock, and families and communities too. They say ‘our cheese is great. Our cows are great. Our wine is great’. All that stuff happens in Italy and France too.

“New Zealand’s doing a really good job growing its food, and there’s a good story there. I think the missing link is repositioning New Zealand as a culinary centre of the world.”

Lee invokes the story of Noma, the renowned restaurant in Copenhagen. “No one paid attention to Denmark as a food destination before Noma. A lot of its food scene was just people trying to do other popular European

food. And then Noma comes along and has the radical idea to raise the flag for Denmark.

“It worked insanely well. Look at the number of ambitious, pedigreed chefs it spawned colonising other parts of the world. Denmark cuisine is on the map. I’m not saying you must execute a Noma copy, but you need something that puts New Zealand on the map.”

Beef+Lamb is awake to the challenge. Its 2023 futures report drew a comparison with the explosive growth of South Korean pop music and film over the past decade. It wasn’t an accident. “In 2001, South Korean President Kim DaeJung called out the export of the country’s popular culture as “an engine of economic development that creates high added value with relatively little investment of resources compared to industrial development.”

The report also notes the success of Global Thai, launched in 2002 – a government-led culinary diplomacy initiative designed to boost Thailand’s overall brand equity, as well as its food exports. “As a result, Thai food is now one of the most influential cuisines in the world, creating opportunities for Thai businesses everywhere in the world, as well as markets for the country’s agricultural exports.”

Mexican food is now protected by UNESCO as an Intangible Cultural Heritage of Humanity, enshrining it as one among an impressive list of traditions to be protected and celebrated for all time.

What’s New Zealand’s food story? Do we have a place in the sun? Is there a food equivalent of Lord of the Rings? And can it be our own this time? “You need something that becomes the salesperson for New Zealand food before you even enter the supermarket with your beef and lamb,” says Lee.

# *Think of it less like the digital camera killing Kodak as more like Spotify co-existing with concerts and music festivals.*

### 3. Innovation and entrepreneurship

Whatever the New Zealand food brand is, it can't simply be manufactured like a made-to-order meal. It will come from a culture of experimentation and entrepreneurship.

Noma is an example of the unpredictability of success. But Lee argues it can be fostered 'the more I practise the luckier I get'.

"Maybe, you all team up and renovate a neighbourhood to make it kind of a foodie paradise. How do you duke the incentives to make it so that you have a higher likelihood of the next Noma appearing organically in New Zealand, right?"

"You need a big war chest to do it and there's no guarantee. I think maybe it's a public-private partnership – team up together and expand the addressable market for all the different things that you do, make the tide rise for everyone."

Our historic strengths hint at where the effort should be put – science-informed, built on te ao Māori principles, spirited in tone and sourced from pure, local ingredients. We could lead the South Pacific fusion movement, with the likes of Monique Fiso, combining her passion for foraged food with haute cuisine and te ao Māori. Or Dale Bowie of Wellington's Development Kitchen, whose whacky combinations include offal and seaweed ice cream.

Bowie, an understudy of experimental UK chef Hester Blumenthal, argues flavour is the hero ingredient missing in the New Zealand food story. "I'm a huge advocate of our story. Look at carbon zero, look at sustainability, for sure. But when somebody puts something in their mouth and goes, 'that's the most delicious thing I've ever had' that is where I say it's a no-brainer. So, for me, I think the flavour is as important, if not more important,

as the story. And I think one of the things that we lack as New Zealand is a focus on really making sure the flavour is where it should be."

It's disappointing that Bowie's Development Kitchen and Fiso's restaurant have both closed – a reminder that even if we are innovative, we also lack the capital and support to scale.

Science will most certainly play a key role if red meat is to survive. A good example is Lumina Lamb which bills itself as the 'world's best lamb' and is the result of a government-funded, 15-year research programme to enhance the omega-3 content of lamb. The meat is produced as a joint venture between processor Alliance and a farmer's collective Headwaters and is fetching both a premium offshore and support from chefs for its flavour and story.

Industry leaders are also looking at the cultured meat and PF technologies not so much as a threat, as described above, but as an opportunity. They see a future where the new protein sources coexist alongside conventional farming, supplementing off-season and weather-related downturns, and providing low-cost alternatives, leaving the premium to the sustainable, nature-positive farmers.

Think of it less like the digital camera killing Kodak as more like Spotify co-existing with concerts and music festivals. One is convenient, accessible and ubiquitous. The other is experiential and premium.

"I see cultivated meat as an 'and' not an 'or' and not something that will replace meat within our lifetime or within the foreseeable future," says Olivia Ogilvie of Opo Bio. "Maybe it will start eating into heavy feedlot systems. High intensity agriculture is never going to be good for the environment or the animals within it.

# *We need to make more from less.*

So, if there is going to be any replacement, it would be in those kinds of intense, ethically questionable, environmentally damaging systems rather than grass-fed systems like we have here in New Zealand, which are very different to like 99% of the animals overseas.”

Irina Miller, co-founder of PF start-up Daisy Lab, is also downplaying the threat to conventional proteins. “We actually need the dairy industry to scale up. There simply isn’t enough stainless steel for PF to create the volume to replace it. So, I see us working collaboratively with the likes of Fonterra and Tatua to supplement their business, not replace it.”

Innovation will also fuel the relentless pursuit of productivity that has made the ‘volume to value’ story so successful in the last 20 years. This is especially true as herd sizes are predicted to shrink. We need to make more from less. According to Beef+Lamb’s future report, more than half of the cow goes towards uses other than meat consumption, creating more than 350 co-products. But these co-products only account for 11% of the total value of the animal. What if these co-products generate more revenue for processors and farmers than meat?

“Studies have shown bovine co-products to be excellent sources of nutritive proteins, minerals and vitamins, creating growing demand within the fields of medicine, pharmaceuticals and cosmetics. Bovine foetal blood, for instance, can be made into a serum that sells for as much as \$900 a litre, generating \$900 million for the US pharmaceutical industry. In high-stakes sectors like medicine, co-products from New Zealand livestock have a distinct competitive advantage, given the country’s pristine environment and geographic isolation from diseases that plague cattle in the rest of the world,” according to the Beef+Lamb report.

New Zealand Pharmaceuticals in Palmerston North has already started creating value from by-products of animals.

Did you know that New Zealand dominates the US\$4 billion market for replacement heart valves, exporting US\$168 million worth of disease-free pericardia from its cows in 2018? Me neither.

The Beef+Lamb report says: “This advantage will continue to work in New Zealand’s favour should it decide to go into cell-based cultured co-products, as it can claim better-quality ‘starter cells’ as a point of difference. There is an opportunity to hedge against any potential decline in global red meat consumption by proactively diversifying and even re-centering the industry around co-products that might command higher margins. The challenge for processors is to go beyond responding to existing demand, to understanding the drivers of demand, so that New Zealand becomes the first to identify new, financially lucrative uses for co-products.”

## **4. Markets and global shifts**

While on the one hand recognised as a storm, trade could also be the final piece in the red meat recovery. In the last five years, New Zealand has inked new Free Trade Agreements (FTA’s) and bi-lateral agreements with the UAE, UK and EU and joined the Asia-Pacific Regional Comprehensive Economic Partnership (RCEP), the largest trade agreement globally.

No-one wants to estimate how much value FTA’s will add to the sector. But these agreements will make it easier for premium New Zealand red meat to land on the shelves, with estimated savings that come from



## *...trade could also be the final piece in the red meat recovery.*

the scrapping of entry tariffs: ultimately making New Zealand meat more competitively priced on supermarket shelves and restaurant menus. With the EU FTA, New Zealand will have eight times as much beef access into the EU as it currently does. There are few better ways to create more from doing the same.

China remains the largest market for New Zealand's red meat and the refreshed FTA hints at growth. But opportunities exist beyond China, with new relationships forged during Covid lockdown. For example, beef exports to Vietnam grew 25% per year since 2020 (albeit off a small base). Similar growth is predicted for Thailand and Philippines driven by urbanisation, rising incomes, and an increasing preference for Western diets.

### **Conclusion**

There's a conversation in the movie *The Shipping News* where Quoye, the main character, and Billy, an old newspaper hack from Newfoundland, consider dark clouds on the horizon.

Billy: Have a look, what do you see? Tell me the headline.

Quoye: Horizon Fills With Dark Clouds?

Billy: Imminent Storm Threatens Village.

Quoye: But what if no storm comes?

Billy: Village Spared From Deadly Storm.

The future for red meat is cloudy. We can all look at the same data and trends and come up with different interpretations. Do you see those trends gathering into a storm to wreak havoc, or will they blow over and create a place in the sun? It probably depends on where you stand.

Farming has always been hard. Is it time to put on the wet weather gear and head into the storm? Or is it time to rethink going out at all?



# *Is it time to put on the wet weather gear and head into the storm? Or is it time to rethink going out at all?*

**United Kingdom FTA** — Adds \$1 billion in export growth over 15 years. Lamb and beef exports will benefit from tariff reductions and quotas, expanding market access.

**China FTA Upgrade** — The upgraded agreement with China is expected to boost red meat exports, especially as tariff barriers are reduced and trade conditions improve for key products like lamb and beef.

**European Union FTA** — While beef and lamb exports will still face some quotas and tariffs, it's estimated that **exports could grow by \$600 million annually** once fully implemented. This agreement opens the high-value EU market for premium red meat, particularly for grass-fed beef and lamb.

**RCEP** — As the largest trade agreement globally, it is projected to increase New Zealand's red meat exports to countries like Japan, South Korea, and Southeast Asia by simplifying trade rules and enhancing market access. This could lead to sustained growth in these markets, though specific projections vary.

- <sup>i</sup> All data in this paragraph is sourced from FigureNZ, <https://figure.nz/chart/L5XrXO6izARmQ7A2>
- <sup>ii</sup> Newsroom, <https://newsroom.co.nz/2022/07/19/is-the-volume-to-value-mantra-true-yes-and-heres-why/>
- <sup>iii</sup> 2024/5 Red Meat Economic Forecast From this document – good read <https://beeflambnz.com/knowledge-hub/PDF/new-season-outlook-2024-25.pdf>
- <sup>iv</sup> [https://static1.squarespace.com/static/62b234e5b82e3f577d752b01/t/66c53bb58b29192315471da0/1724201950360/Coriolis\\_Meat\\_2024\\_Public\\_Version\\_100.pdf](https://static1.squarespace.com/static/62b234e5b82e3f577d752b01/t/66c53bb58b29192315471da0/1724201950360/Coriolis_Meat_2024_Public_Version_100.pdf)
- <sup>v</sup> <https://www.mdpi.com/2076-2615/11/12/3466#app1-animals-11-03466%7F> Target:\_blank%7D
- <sup>vi</sup> <https://nutritionj.biomedcentral.com/articles/10.1186/1475-2891-12-45>
- <sup>vii</sup> <https://www.washingtonpost.com/news/wonk/wp/2015/03/05/the-slow-death-of-the-home-cooked-meal/>
- <sup>viii</sup> <https://www.mdpi.com/2076-2615/11/12/3466#app1-animals-11-03466%7F> Target:\_blank%7D
- <sup>ix</sup> <https://beeflambnz.com/sites/default/files/data/files/Regen%20Ag%20summary%20report.pdf>
- <sup>x</sup> <https://www.thelancet.com/commissions/EAT>
- <sup>xi</sup> <https://www.euromeatnews.com/Article-Historical-highs-for-NZ-beef-and-lamb-exports-in-December/5253>
- <sup>xii</sup> [https://en.wikipedia.org/wiki/Cultured\\_meat](https://en.wikipedia.org/wiki/Cultured_meat)
- <sup>xiii</sup> <https://beeflambnz.com/advocacy/biodiversity/native-vegetation-sheep-and-beef-farms-summary-report>
- <sup>xiv</sup> <https://www.beeflambnz.co.nz/what-is-a-healthy-and-sustainable-diet>



# 04

Future of Food series

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