

Future of Food

The breakthrough

Can New Zealand
become a
powerhouse of
food innovation?



Powered by FoodHQ

Powered by



Future of Food series
Issue 05

Published February 2025

Written by Vincent Heeringa and Dr
Victoria Hatton based on interviews with:

Founders Advisory

- Nicola O'Rourke, Managing Partner

Independent Consultant

- Dale Bowie, formerly of Wellington's
Development Kitchen

Lincoln University

- Professor Alan Renwick
- Opo Bio
- Olivia Ogilvie, CEO and Founder

New Zealand Food Innovation Network (NZFIN)

- Grant Verry, Co-CEO
- John Morgan, Co-CEO

State of Play Brewery

- Grant Caunter, CEO and Founder



Dr Victoria Hatton • CEO

+64 27 538 5338

victoria@foodhq.com

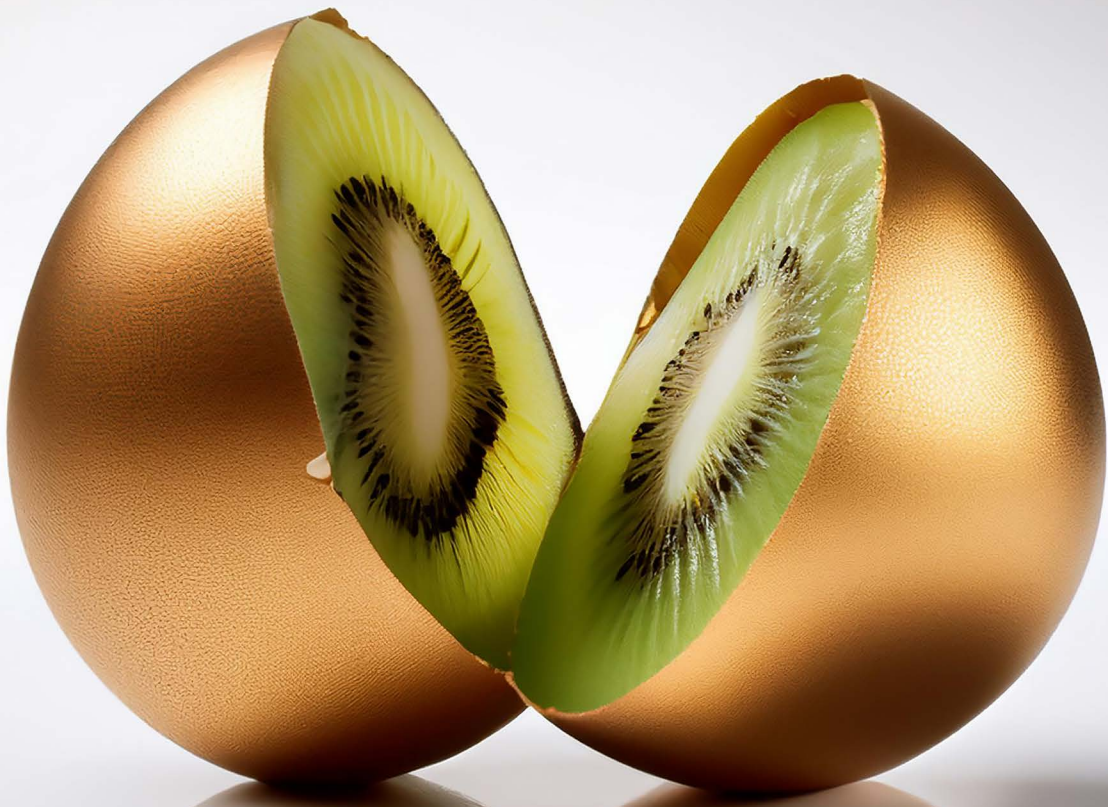
FoodHQ Innovation Limited

21 Dairy Farm Road
PO Box 1210
Palmerston North 4440
New Zealand

www.foodhq.com

The breakthrough

Can New Zealand
become a powerhouse
of food innovation?



New Zealand has a great history of food innovation and was often referred to as a ‘petri dish of possibility’, but it feels like we have lost our imagination and growth mindset over recent years. As our food producers are challenged to contribute to the government’s ‘double export value’ policy, we need to regain the innovation momentum to become a food superpower. How can that happen and what’s stopping us from getting there as soon as possible?

Threat: A decentralised food innovation system and a slow pace of commercialisation mean New Zealand may miss the chance to reach its limits of productivity gains in food. Without systemic change, we will not achieve our ambition and will lose our competitive global position.

Opportunity: A highly efficient production and supply chain system with a strong record of science and innovation could mean New Zealand becomes a powerful food exporter. Redoubling efforts in science, commercialisation and entrepreneurship could see an increase in product categories, and an increase in the efficiency and sustainability of the value chain.

Key points:



New Zealand has a strong record of discovery and inventiveness in high-demand areas such as protein, fruit and food service, and while we are reaching our volume limits, research, science and innovation could help increase the value of food and fibre exports.



The innovation talent base is declining, the innovation ‘system’ is fragmented, and New Zealand’s track record of large-scale, value-add commercialisation of new product categories could be better improved if we had a more connected, sophisticated innovation system.



There have been export successes over the last two decades in fruit (apples, pears, kiwi), dairy, wine, fish and meat and these hint at a way forward but we need to accelerate adoption of the technology innovations and focus on scalability of value-add production.



An innovation framework is needed in New Zealand, that brings together research, science, and commercialisation to be financially supported by government and backed by industry.¹

Nicola O'Rourke is feeling buoyant.

An investor in fast-growing export start-ups, O'Rourke squeezes in a phone call from the car as she rushes between meetings. "I'm seeing a lot of opportunities at the moment for businesses that have done a really good job of getting to, say, five million in revenue, and are now poised to go global."

That's good news for O'Rourke and even better for New Zealand. The former general manager of Lewis Road Creamery is parlaying her nous for growth into what she calls the CPG space – consumer packaged goods.

"Most of these companies are at an early stage and are now looking for the next level of investment to scale offshore. So, I'm optimistic. I think there's some exciting opportunities happening in New Zealand now. I think very soon, probably in the next three to five years, you're going to see some big exits happen, which will be a bit of a wake-up call."

We could do with some high-profile successes right now. With the economy slumped it's hard to see how New Zealand can meet the government's ambitious goal of doubling the value of exports in 10 years. The food and fibre sectors are reporting a seemingly endless stream of bad news, yet there is pressure to play a substantial part in delivering the goal.

Consider the numbers. Food and fibre represent 62% of our current exports, and while it is not yet known how much doubling of export value means, primary sector exports will certainly need to grow from \$54.3b to as much as \$100b, with a compound annual growth rate (CAGR) of 7.2%.

At first blush, that seems tough. Export values fell in the last 12 months and headwinds suggest tough times will remain, especially in China, our largest market by miles.²

But we've been here before. In 2013, fresh out of the global financial crisis, the Key-English government announced the exact same goal for exports. Primary sector export growth was targeted at \$64 billion by 2025. The current forecast is \$58 billion – not quite double, but a solid 70% growth, and CAGR of 6.1%.

And the 2034 goal is not all up to the primary sector. As Graeme Muller from TechNZ points out, software is growing at 24% a year, forecasting a contribution of \$12b in 2025. If this continues, the tech sector could be meeting more than its fair share of the target.

So, the target has some precedent. But a goal is not a strategy. How will it actually happen?

Trade minister Todd McClay is pinning hopes on more Free Trade Agreements (FTA's), trade missions and a strategic focus on India. But the bulk of the task will fall on the industries themselves. Just where will the growth come from? And what must we do to make it happen?

The challenge

So, let's surmise if the export value of food is to double, then something must change – business as usual won't cut it. For one thing, while we probably have enough land to double value by growing more agricultural export volumes would have to increase by a whopping 63% over the next decade to meet the target³ and our social license to do this is unlikely given that our existing footprint is already pushing the limits of planetary boundaries in water, greenhouse gas emissions and biodiversity loss.

“If we think we can drift into the future with an incrementalist approach to achieve the growth we are talking about, we’re out for lunch,” warns veteran food leader Lain Jager.

The answer is that we need to do two things: get more value from what we already do and create new categories that don’t yet exist.

In other words, innovation.⁴ Let’s be clear though for innovation we need science to generate the knowledge and then commercialisation to create the value.

New Zealand has good form in this. From our European and Polynesian explorer roots, to refrigeration, rye-grass genetics, Kiwifruit re-branding and bold trade deals, we’ve earned a reputation for ingenuity, even if there is a little mythmaking along the way.

We’ve been good at getting more from less.

New Zealanders might be surprised to learn, for example, that despite farming’s dominant role in the economy, agricultural land area has shrunk from a high of 152k sq. km in 1981 to 102k sq. km in 2021. And yet export revenues have more than doubled. According to Westpac, agricultural productivity hit a high of about 40% in the 1980s and remained at an impressive 30% a decade later. We’ve grown the value of red meat, apples and kiwifruit while herd sizes and crop areas have shrunk.⁵ Dairy, grapes and avocados have expanded their footprint but the growth in *value* far outstrips the growth in *volume*.

So far so good. Doubling the value of exports yet again begs a question: can we continue with the current formula? Will more of the same deliver a different outcome?

Four challenges suggest not.

First, productivity seems to be flattening. Westpac says that “multifactor productivity grew by an average 5.6% per annum between 1985 and 1999, slowing to just 1.4% between 2000 and 2009. Much of the earlier gains came from increasing economies of scale, greater mechanisation, and changes in land use. Productivity growth in agriculture has since averaged 1.7% per annum between 2010 and 2023.”

Assuming that sheep, beef, and dairy cattle stock levels continue to fall and that the land available for pasture and horticulture remains largely constant, then productivity would have to return to the 1980s levels.

That won’t happen without innovative change.

Second, we’re entering an era of disruption. Shocks to the system, such as Covid and Cyclone Gabrielle, hint at a volatile, uncertain, complex and ambiguous future (VUCA).⁶ A key feature of this VUCA world is the exponential nature of change, which is hard for many people to fathom. In our daily lives, change seems incremental and linear, but the changes posed by technology, say in precision fermentation, Artificial Intelligence or synthetic biology, can be sudden and explosive. It’s hard to imagine a world without smartphones, but the iPhone was launched only 14 years ago. Similarly, the threats posed by climate change are networked, that is, they could cascade from one simple change, say in Atlantic Ocean acidity, to a collapse in planetary weather patterns.⁷

In a VUCA world, the past is not a reliable guide to the future, so repeating the actions that delivered export growth will not do it this time around unless we change our business models to be resilient to volatility.

Third, in the last 20 years, dairy has provided a king hit for export growth. The success of dairy conversions and the sale of infant milk powder in China has played a disproportionate role in the near doubling of exports. While there is sound evidence that milk production could increase here in New Zealand, after all we are great at growing dairy, would we get the social licence to do so? And if we did, would there be a market for it given the geopolitics at play globally and how long would that market exist given the global race to produce cheaper alternative dairy proteins?

Fourth, New Zealand is not heavily invested in research and development (R&D). In the Global Innovation Index⁸ 2023, New Zealand ranks 24th in innovation inputs and 31st in innovation outputs, suggesting a gap in converting inputs into tangible outputs. Moreover, New Zealand’s top R&D investor is Xero (digital financial services) with an R&D intensity⁹ of 31%. Fonterra who is in the top three R&D investors, invest just 1%. This alone indicates a substantial difference between high tech and primary sector innovation investment. If we are to double primary sector exports, then we need innovation to deliver the change.¹⁰ New Zealand needs to leverage its research, science and education strengths if we are to become well set up for innovation in food.

...the past is not a reliable guide to the future

Opportunities #1: Consumer Packaged Goods

In consumer-packaged goods, the growth is most likely to come in the form of innovative start-ups. New Zealand has had an explosion in the number of small food brands in the last 20 years. Companies like Teiny (pronounced Teeny), the oat milk-powder company with the appropriate tagline ‘small changes for big impact’ hints at where our future innovation may lie. Started by school friends Emma Arvidson and Renee Tauwhare, Teiny uses oats sourced from the South Island, was incubated into existence by Christchurch’s Electrify Accelerator, funded by Auckland’s Climate VC Fund, and won multiple start-up and industry awards. The product seizes on the appetite for dairy alternatives and reduces the emissions problem of ‘shipping water’ around the globe.

Teiny solves a problem in a growing market with a clever twist on existing technologies. Tick, tick, tick.

“It’s a good example of how the innovation system can work well. Teiny have adapted an existing business model – dairy – and innovated and evolved” says Dr Victoria Hatton, Chief Executive of FoodHQ. “A high-functioning food industry should be constantly generating ideas that build on the strengths of the past, nurture them with advice and capital and create surprising opportunities for the future”.

Teiny is one of thousands of new brands to emerge in the last 20 years doing just that. Tim Morris from Coriolis, a market research firm studying the food sector for decades, says an explosion of small-time entrepreneurial brands has seen our economy shift from unprocessed materials sent to the UK to sending

packaged goods to Asia. “There are tens of thousands of entrepreneurs trying things in tens of thousands of markets and channels,” says Morris. “And it is working for us.” However, as Hatton says, “New Zealand is doing OK, but we have room to do a whole lot better”.

Take ice cream. Building on our strength in dairy, the sector has grown 5% per annum since 2003 and exploded with artisanal brands in the last 10 years.¹¹ Product innovation has resulted in new ingredients (cauliflower), new flavours (manuka honey), new bases (sheep or goats’ milk), and new packaging (cardboard tubs, novelty sticks). We have new companies entering the market and while export volumes have remained constant, value is being added through growing prices.

Craft brewers are not called ‘mad scientists’ for nothing. They are another fine example of a community where the culture of innovation is now deeply engrained. A sector that has been booming in New Zealand for a few years as they are constantly experimenting. From sustainable grains, herbs, spices, and fruit flavours to innovative brewing methods that help alleviate issues caused by the global shortfall in CO₂ supply. And look at the innovations in the non-alcoholic craft beer category – which has about a 10% share of the market in Europe. “Non-alcoholic craft beer is the only segment in the beer industry that is in growth” says Grant Caunter, Founder of State of Play, New Zealand’s first and only zero alcohol brewery, “and this has sent shockwaves through the industry. It’s also the segment that is recruiting new drinkers”. Caunter, who recently returned from Amsterdam where he was the Global Head of Craft Beer for Heineken brews with an innovative yeast that produces minimal alcohol. He believes that there is a real advantage for New Zealand in this growth sector.

Craft brewers are not called 'mad scientists' for nothing.

“New Zealand is positioned with our brand and quality to deliver on the expectations that our zero alcohol beers taste great and have added benefits of having no nasties included”. He goes on to say that “our advantage is that New Zealand hops work wonderfully with zero alcohol beer and new innovation in hop oils and hop adjuncts are changing the game to the point where we have real potential to export our zero alcohol beer, and the ingredients we use”.

Chocolate too is flourishing, with unique flavours (feijoa, kiwifruit, tamarillo) and clever branding. Worth about \$100 million in exports per year, this will grow if we can follow in the footsteps of ‘wine and honey’ to focus on developed markets with high premium consumption.

Like Hatton, Nicola O’Rourke sees potential for growth in innovation in New Zealand and is particularly excited about the future for consumer-packaged goods. Whether it’s in food, health, or beauty, the categories share common attributes. “It’s typically got very little truly defensible intellectual property [such as patents] and so it’s about getting a fabulous product to a consumer as fast as possible, then learning, evolving, iterating, tweaking, and building out range extension and distribution as fast as possible.”

But range extension needs new knowledge to be competitive.

The New Zealand Food Innovation Network (NZFIN) knows all about this. It is set up to enable businesses, from start-ups to corporates, in the food and beverage sector to create new knowledge to remain competitive. They find innovative ways of working with ingredients, technologies, engineering processes to add-value. NZFIN is a support system to help innovators reach export scale. According to John Morgan, Co-Chief

Executive, a key question he often asks innovators is “what’s the best realisation of the value? It could be as a pristine Zespri Kiwifruit, or a nutritious juice and a high-value extract from the fruit skin. It may not just be one thing or looking at a product one way.”

O’Rourke believes the same approach could be applied to our volume industries, like red meat and wool. She’s well qualified to know. The launch of Lewis Road Creamery showed there was untapped demand right under the noses of the existing players. Its recent foray into double cream, with slightly higher fat and better mouthfeel, shows further demand exists – it just needed someone to uncover it.

Red meat must have similar potential, she says.

“Millennials are the first generation to age with social media and have formed a lot of their opinions through that medium. We could be having a very interesting conversation around protein for the next 10 to 20 years and positioning ourselves in such a way that we could be taking advantage of that funnel of consumer groups as they age.”

The size of the prize for this type of innovation is hard to quantify. Thousands of entrepreneurial brands creating an endless stream of high-value consumer brands adds up to a big number.

And someone may hit a jackpot. O’Rourke points to turnaround stories like Lucozade, where a single brand transformed the out-dated health tonic industry to the explosive sports drinks industry, now worth billions and growing. “We have enormous potential. Where is our thought process on that as a country?”

All this is with the context that New Zealand is not a highly successful incubator of start-ups: there are

just 2,400 across all sectors. We are on average less globally connected, not enough of our founders are seeking global markets for their products. New Zealand start-ups raise less money, take longer and have a high attrition rate between funding stages than many of their global peers. And then we have talent attraction issues to fill experienced technical positions to help with the growth of the start-up.¹²

Opportunity #2: Changing Land Use

Producing finished goods is a great space for innovators to play and will make a dominant contribution to that 10-year double value export target. But what about deeper, more structural innovations? Could New Zealand create new growing platforms like peanuts or hemp or seaweed?¹³

There's a strong rationale for all three. Seaweed, and aquaculture more broadly, has the potential to become a multibillion-dollar industry in food, and the much-underrated cosmetics and pharmaceuticals.

Hemp is well suited to New Zealand's temperate climate and thrives in many regions already. Combined with deep expertise in plant science and food production, New Zealand has potential to produce it at scale. As a nutrient-rich source of protein, hemp seed has value as a whole food source and a high-value food ingredient. It has a lower water footprint and requires fewer pesticides compared to other crops, while its deep roots contribute to soil health improvement and erosion prevention. This all means it is well positioned to compete alongside soy, pea, and fava bean protein as a major plant-based protein ingredient in a market expected to have rapid growth in the coming years.

New Zealand is committed to growing its aquaculture industry to \$3 billion by 2035 – though the Cawthron Institute says it could be \$10 billion in the next decade.¹⁴ With seaweed projected to triple in value globally by 2030, it makes sense for New Zealand to consider establishing a seaweed industry. Additional research is needed to further explore how to extract protein from native seaweed species at scale. And a study would be necessary to determine the feasibility of establishing a seaweed protein extraction and processing facility in New Zealand. However, our competitive advantages in this area are considerable.

Despite the economic logic however, the barriers are high – so high that such industry-scale change has not happened in 50 years. Research by Coriolis for the Ministry for Business, Innovation and Employment called the 'Situation and Capability Report'¹⁵ shows that new crops and cattle face almost impossible hurdles.

According to Tim Morris, "no new globally competitive farming systems or biomaterials production systems have emerged in the last 50 years. All the large biomaterials production systems and post-farmgate processing systems [red meat, dairy, kiwifruit, berries, stone fruit] emerged in the decades prior to 1984.

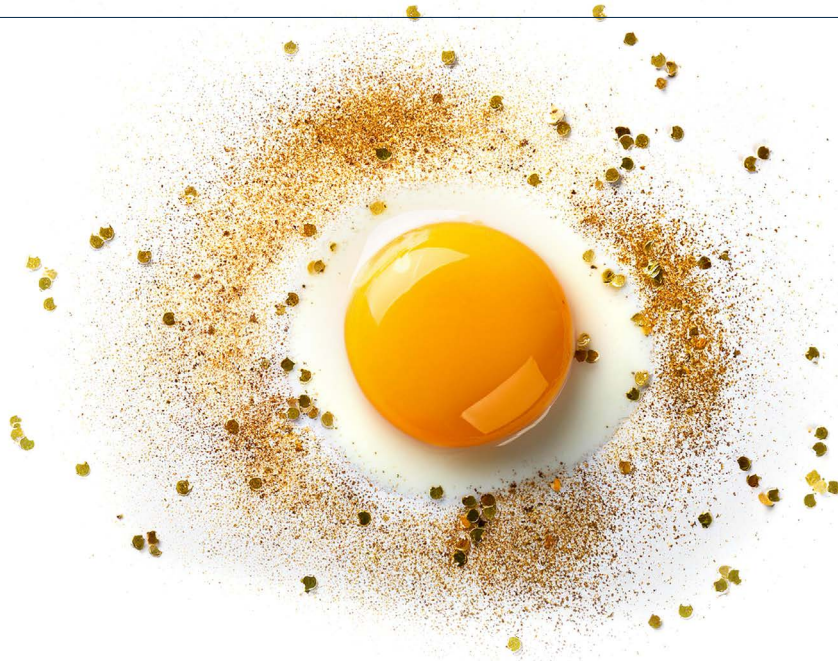
"They were the beneficiaries of massive, long-term support and public-private partnership collaboration between government and industry. Unless this kind of patience and deep investment occurs again, introducing a new globally competitive biomass production system is almost impossible."

By new platforms Morris is talking about entirely new crops, such as hemp, canola, bananas, peanuts or soybeans – all of which are currently being tried.

The problem is not climatic or even market demand – it's in the investment required to achieve economies of scale. It takes a minimum of 20 years to go from a successful pilot to being globally competitive. And it takes system-wide collaboration and investment from government, research, growers, distributors, marketers and trade negotiators.

This pattern is evident in the history of kiwifruit, wine, avocados and berries, and fits with a globally acknowledged phenomenon called the Experience Curve.¹⁶ First explained in 1968 the theory shows that costs decline 20-30% each time production is doubled. But, it takes time to create efficiency. Who funds that cost gap?

Peanuts are an example. About \$1 million has been invested in Northland peanuts, making the current cost about \$100/kg. Following the Experience Curve, Northland needs to produce 8,800 tonnes before the cost approaches what a New Zealand buyer is willing to pay and 34,000 tonnes to compete with Argentinian producers. In the meantime, who funds the growers, the researchers, the distributors and buyers to build that scale? In the past, that cost was borne by industry and government working on large-scale, long-term collaborations.



“The New Zealand government will need to take a more proactive approach if it wants new biomass production systems (e.g. hemp, canola) at scale to emerge,” says Morris. “Otherwise, it will remain stuck in what McKinsey calls an unhealthy pattern of ‘creating ideas but not building businesses.’”

Given the predominant appetite for smaller government, less intervention and lower public spending it’s unlikely we will see land-use change achieve a globally competitive scale. Which is not to say it’s a bad idea, but it requires the kind of public-private partnerships no longer tolerated in New Zealand.

Opportunity #3: Deep Tech

A third area for innovation is deep tech, commercialising research buried inside our universities and Crown Research Institutes (CRI’s). Unlike land-use change, this holds great promise, given a long heritage of success from apple and kiwifruit cultivars to Fonterra’s revolutionary mozzarella and high-grade Lumina Lamb.

This type of innovation is, of course, expensive and takes a long time. It requires an entire ecosystem of support and multiple parties. “And sometimes even with this support, it takes years to create impact through the commercialisation pipeline” says Dr Victoria Hatton. “Our CRI’s and universities have very different approaches to commercialisation. A researcher employed in a CRI is industry-aligned and understands that getting new technology out of the door is as important as a publication. It’s the opposite for universities, where a researcher’s success is measured by the volume of high-ranked publications, so their focus is on teaching, academic research and students.”

But the advantage of this over the incremental or rudimentary innovation described above is the creation of those magic words: intellectual property (IP). Growing the Envy apple has been a great business for New Zealand orchardists but an even better business for the CRI, Plant and Food Research, which owns the plant variety rights (PVRs). The CRI earns almost \$60m a year in royalties, a third of total revenue, from its PVRs in apples, kiwifruit, berries and so on.

Hatton says that “There is a lot of tension between publishing and commercialisation, with commercialisation being viewed as a trade-off for researchers in universities. It doesn’t need to be like this. To speed up the commercialisation activity in a university, researchers need to understand that it’s not that you can’t publish, it’s a question of what you can publish and release early into the public domain to protect IP.”

IP done well is the gift that keeps on giving. It’s the export that requires no shipping, consumer regulations or supermarket competition. And it feeds a value chain that benefits everyone: growers, distributors, retailers and consumers.

Unfortunately, Plant and Food Research is an outlier when it comes to commercialisation. Few New Zealand organisations record significant royalty incomes. The Global Innovation Index¹⁷ ranks New Zealand 25th, below all our trading partners and similar sized, comparative countries. Switzerland, Sweden and Singapore are in the top five. What’s the problem? The report shows there’s a profound gap between innovation *inputs* (rank 28th) and innovation *impact* (80th). This could be because information that has commercial value to an organisation is also held as a trade secret. There is no database of trade secrets which are often very valuable if deployed appropriately.

There's a profound gap between innovation inputs and impact.

Alan Renwick, a professor of agricultural economics at Lincoln University and originally from the UK, is at once impressed by our science and industry and puzzled by the lack of connection between the two. “I feel that our strength is very much in our production, that we are able to operate without subsidies and are attuned to the market. And I would definitely say historically we have been smart at science and R&D.”

“But we don't have a systematic approach to innovation. We don't have strong integration between the universities and industry. And the intermediaries between us, I feel, are quite fragmented and disparate.”

But industry is also free to look elsewhere for its innovation partners and sometimes this is with universities outside of New Zealand because the talent and support they need simply doesn't exist here.

The gaps appear in the niches. Olivia Ogilvie, the co-founder of Opo Bio, a cell-cultured meat start-up in Auckland, says the business advice, funding and industry support for her pioneering business has been good. What's missing is specialist knowledge. “An example of this would be when we were buying a bioreactor. There were none in New Zealand so we couldn't view any in action. And Callaghan Innovation, a Crown entity with the task of making New Zealand more innovative, ironically did not have anyone with expertise in the space to advise us.”

Nicola O'Rourke says a handbrake on Lewis Road's progress was the specialist consumer focused manufacturing support for small-scale operators. “We're very good at building large stainless-steel facilities, aimed at providing bulk format packaging. But when you look at trying to scale from food science to a minimum viable product and then to servicing a

small, addressable market, we don't actually have the consumer format manufacturing capability at scale.”

“I hear amazing stories where people are pushing through and finding solutions. But getting the food and beverage into a format that consumers want seems to be the challenge.”

Barriers to success

What needs to change to deliver all the above? We have been writing about innovation in New Zealand for more than 20 years now and the themes have remained consistent over that time. We perform poorly compared to other small nations on almost all measures of innovation, including:

- Number of patents per capita
- Proportion of R&D spend to GDP
- Volume of R&D by the private sector
- Number of research scientists per capita
- Number of STEM graduates per capita

As a nation we underfund and undervalue science. The recent cuts in science funding have seen hundreds of scientists leave the sector and many programmes shut down.¹⁸ And we tax innovation badly. Currently we tax unrealised gains on Employee Share Schemes making it harder for start-ups to give their employees shares – a powerful tool for retention and reward. This would align New Zealand with global best practice. And unlike Australia and the UK, we provide no tax incentives to capital investments in high-risk ventures.

New Zealand is out of step with its peers.

The government has reviewed the science system, which has not substantially changed since the 1990s reforms. The man leading the review, Sir Peter Gluckman, is well qualified having been the first Prime Minister's Chief Scientist and a strong advocate for higher learning. He hinted at this recommendation in a paper last year. In summary: New Zealand is out of step with its peers.

"Europe has a goal of an overall research intensity of 3%. Naively, public policy in New Zealand continues to assume that the goal of 2% research intensity will largely be met by the private sector, but this takes no account of our corporate mix and the lack of large companies in our ecosystem. European experience suggests until public expenditure is more than ~ 0.8%, private sector investment will not increase beyond roughly that of the public sector.¹⁹

Most developed and many developing countries have programmes for innovation, where government matches dollar for dollar every industry dollar that is spent with a university. This does not exist in New Zealand but would help build an innovation framework in New Zealand, support talent growth on shore, and is the simplest way of driving innovation and collaboration across the value chain and industry.

Beyond funding, there are other hurdles to innovation, almost all of them cultural or organisational.

Doing, not learning. Alan Renwick, a relative newcomer to New Zealand, says his perception is that our organisations prefer *doing* over *learning*. "This is just me speaking now, but I find there's a cultural gap between people who love knowledge and people who love action, and boards are full of action people. They want

to see things being done but then when they delegate to staff there's a risk-averse culture of managers who are not leaning into the new knowledge."

Silos and duplication. For a small country, we have an impressive number of organisations operating in silos, duplicating efforts. Research shows that the average Russell Group University²⁰ in the UK has four thousand academic staff; the average New Zealand university has closer to one thousand. This leads to higher administration costs, duplicated functions, and limited capacity for key activities like research impact.²¹

Dr Victoria Hatton says in Palmerston North our innovation ecosystem is 'fragmented'. We have Massey Ventures Ltd, the Factory, Sprout Agritech, two CRI's, the Central Economic Development Agency, and Callaghan Innovation. It's not clear who does what, who helps who to innovate and at what stage of the commercialisation pipeline these organisations step-in.

"They're all set up with good intentions but there's a reasonable amount of competition to create the biggest impact from R&D. With limited funding in such a small ecosystem there must be ways to centralise and find synergies. And I doubt Palmerston North is alone in this. We need to turn it on its head and say, how can we design a national innovation system that is outcome orientated, not parochial."

Inwards focus: Nicola O'Rourke finds entrepreneurs aren't as commercial as they should be. "We don't understand scale. We're quite happy to sort of tinker around in our sheds, then go to market and realise we haven't spent enough time working out who the consumer is. I think it's got worse post-Covid. We've almost done the opposite of being globalised. Get back

“if I’m honest, it’s a bit of a mess”

out into the markets. What’s happening globally? Look at where the big needs are changing and find what our role is in that as a country.”

Fragmentation: It’s hard for entrepreneurs and investors to navigate their way through the ‘system.’ Grant Verry, Co-Chief Executive of New Zealand Food Innovation Network, which provides connected solutions across the idea-to-market journey, says we have not created a joined-up innovation system, especially in fields that don’t have a well-worn path, like plant-based foods or emerging proteins. “I think the opportunity for success is to create a purposeful innovation ecosystem. One that works in sync between research, start-ups, industry, funders, and government. We already have a lot of great stuff going on, the opportunity for us is to activate it with international scale in mind.”

Writing in Newsroom, chair of Cawthron Institute Cath McLeod says New Zealand is “far from that kind of coordinated, strategic approach at present – if I’m honest, it’s a bit of a mess. While there is incredible work happening in pockets across our research, science and innovation system, there is so much overlap, competition and bureaucracy, that examples of successful real-world application of R&D innovation are few and far between.”²²

Lack of sophistication: Too many food entrepreneurs lack business acumen, relying on happenstance for growth. Nicola O’Rourke wants to see a shift from opportunism to design. “A lot of the conversations I’m having with early-stage food and beverage businesses are about growth by design, not just responding to incoming calls. There’s nothing wrong with opportunistic sales, especially for testing and learning in the very early

stages, but you’ve got to be very careful about where you put the limited capital you’ve got.”

Talent shortage: A gap is growing between the skills that we need to foster innovation and entrepreneurship and the skills that are available in our workforce. There is real concern that we will be unable to add value to the food we grow because the pool of talent in our innovation ecosystem is shrinking says Dr Victoria Hatton. “We need to do something magical to make food tech, food science, innovation and entrepreneurship appealing to young people.” She says, “we need to think seriously about how we can supercharge the capability building pipeline to ensure we can deliver our goals to add value.”

Hatton is scheming up ways to do just this. FoodHQ is about to launch a scholarship fund for students wanting to join the Food Technology Programme at Massey University as one way to engage young people in the subject. But Hatton is also considering ways to use Tik Tok to influence and attract young talent to the food innovation ecosystem.



New Zealand has everything it needs to become a global food powerhouse. What's the hold up?

Conclusion

For a country that prides itself on ingenuity we could do with a motivational kick. Ranking 25th on the global innovation survey is disappointing. We have the resources, the history and the talent. We can't seem to reach for the prize. It's like watching the All Blacks choke in the last quarter.

The story of Dale Bowie of Wellington's Development Kitchen summarises the theme. An understudy of UK chef Hester Blumenthal – whose foamy dishes pushed the edge of gastronomy – Bowie is pioneering new flavour profiles, trying whacky combinations like offal and seaweed to make ice cream. His experimental kitchen was funded by industry and government to explore new flavours – a hugely missing factor in the New Zealand story.

"I think developing flavour is the opportunity for all New Zealand produce," says Bowie. "When we look at honey or beef or fish, we produce fresh, sustainable ingredients with an amazing story – and that's great. But why are we happy with the status quo? We've got such an amazing story, but we need something else to seize an opportunity to become more than just a footnote in global cuisine."

Sadly, Bowie's kitchen is now closed, perhaps a victim of reduced science funding but also a lack of industry backing as export focused food companies like Fonterra, do application development in-market as every market differs in sensory needs.

Bowie feels its possibly because we aren't brave enough. "New Zealand's awesome at doing things well but there's a little bit of the Kiwi thing of being safe and not being prepared to make that huge jump, that leap of faith. We're a cautious country".

"One of the things that really gets me is this term return on investment – it implies eliminating creativity because creativity doesn't provide a guarantee. There is no way that I can say to you that if you pay me half a million dollars, I'll guarantee success. But without risk there's no return".

"It's funny really. Everyone's excited. They understand exactly what we're doing. But because we're a bit different it's very difficult to put us in a box and say, 'oh it's one of those and we've done that before'. So, I'm feeling optimistic. I think at a certain point the lights will go on, they'll go, we need to reopen The Development Kitchen."

How long will that take? What needs to change to make that happen? Like the Development Kitchen, New Zealand has everything it needs to become a global food powerhouse. What's the hold up?

-
- ¹ As this goes to print, the science system review has been published with hopefully game changing results for economic growth and innovation extension.
 - ² MPI, June 2024, <https://www.mpi.govt.nz/dmsdocument/62637-Situation-and-Outlook-for-Primary-Industries-SOPI-June-2024>
 - ³ Westpac, 2024, https://library.westpaciq.com.au/content/dam/public/westpaciq/secure/economics/documents/nz/2024/05/Economic-Data_Agri-productivity-analysis_bulletin_28May24.pdf
 - ⁴ For this paper, innovation is defined as the translation of relevant (new/existing) knowledge into value
 - ⁵ Dairy NZ, 2022, <https://www.dairynz.co.nz/media/uzeeekwgr/nz-dairy-statistics-2021-22-web.pdf>
 - ⁶ A VUCA world describes the situation of constant, unpredictable change that is now the norm in certain industries and areas of the business world.
 - ⁷ Oceanographic, 2024, <https://oceanographicmagazine.com/news/amoc-atlantic-tipping-point-keeping-climate-stable-greatly-underestimated/#:~:text=More%20than%2040%20of%20the,than%20has%20been%20previously%20estimated.>
 - ⁸ <https://www.cie.auckland.ac.nz/newsroom/new-zealands-innovation-challenge-bridging-the-gap-to-global-leadership/#:~:text=lf%20New%20Zealand%20matched%20Switzerland's,a%20crucial%20area%20for%20improvement.>
 - ⁹ Research intensity is calculated by dividing R&D expenditure by total sales revenue
 - ¹⁰ Innovation alone won't deliver change. Innovation needs to be supported with infrastructure and market development.
 - ¹¹ Coriolis, 2023, <https://www.beehive.govt.nz/sites/default/files/2022-01/Food%20and%20Beverage%20Information%20Project%20Report%20-%20Opportunities%20in%20Ice%20Cream.pdf>
 - ¹² <https://www.mbie.govt.nz/dmsdocument/26386-assessing-new-zealands-startup-ecosystem>
 - ¹³ Food HQ, 2023, <https://www.foodhq.com/news-and-events/2023/unleashing-aotearoa-new-zealands-next-protein-revolution>
 - ¹⁴ Newsroom, 2024, <https://newsroom.co.nz/2024/10/29/an-untapped-asset-capable-of-transforming-our-economy/>
 - ¹⁵ Coriolis, 2023, <https://www.coriolisresearch.com/reports/coriolis-bio-situation-capabilities-100a>
 - ¹⁶ Wikipedia, 2024, https://en.wikipedia.org/wiki/Experience_curve_effects
 - ¹⁷ WIPO, 2024, https://www.wipo.int/web-publications/global-innovation-index-2024/assets/67729/2000%20Global%20Innovation%20Index%202024_WEB2.pdf
 - ¹⁸ Save Science Coalition, 2024, <https://scientists.org.nz/Save-Science-Coalition>
 - ¹⁹ Peter Gluckman, 2022 <https://informedfutures.org/wp-content/uploads/pdf/Green-paper-submission-Sir-Peter-Gluckman.pdf>
 - ²⁰ <https://russellgroup.ac.uk/about/our-universities/>
 - ²¹ Jez Weston, 2024, <https://climatevcfund.com/seven-proposals-for-a-step-change-in-nz-innovation>
 - ²² Newsroom, 2024, <https://newsroom.co.nz/2024/10/29/an-untapped-asset-capable-of-transforming-our-economy/>

05

Future of Food series

FoodHQ is the New Zealand hub of leading food and food production researchers that advocates for collaboration, food innovation and investment among researchers, industry, and policymakers to tackle challenges to advance the food industry.

www.foodhq.com

foodTMoHQ
Shaping the Future of Food