New Zealand
FOOD SAFETY SCIENCE & RESEARCH CENTRE

CONSUMED

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ARE WE DOING ENOUGH?

Highlights of the 2024 NZFSSRC annual symposium

The journey to the annual symposium was long and winding for many. Fog is not unusual in the Waikato, especially in mid-winter. One flight-full of speakers and delegates caught a tantalising glimpse of the runway just as the pilot aborted the landing and returned to Wellington airport and re-booking bedlam.

Stranded kapa haka performers, returning home after a weekend of Matariki celebrations at Te Papa Tongarewa, companionably shared their stories (and chocolate) with delegates. This is New Zealand!

Thanks to some fast work by Centre staff, almost everyone made it to Hamilton in time for the 9 o'clock start on the Monday. After spending hours together in airport terminals and rental cars, there were no strangers among them. More evidence that every cloud has a silver lining.

Last to fly in the door after a very early start to catch the 6am 'red-eye' to Auckland, followed by a rush-hour drive down to Hamilton, was kaumatua Rauru Kirikiri, who opened the symposium. Auspiciously, Matariki was rising in the northeast as Rau's flight left Wellington. "Matariki is as much about food as it is about those who have gone before us," says Rau. Growers look forward to each new season with fresh hope, and a backward glance to experiences of the last seasons – who could forget the devastation caused by Cyclones Hale and Gabrielle and the ceaseless rain that followed.

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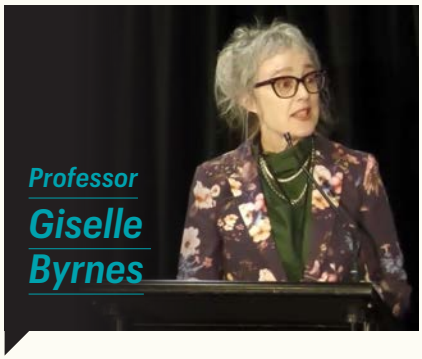
so well-known to the food safety network, again took on the role of symposium MC in his trademark style which brings lightness and humour to any agenda. His instructions on what to do in an emergency channelled the late comedian John Clarke.

The symposium began with addresses from the top echelons of government and academia: Minister of Food Safety, Hon. Andrew Hoggard; Massey University Provost Professor Giselle Byrnes; and MPI Deputy Director General NZ Food Safety, Vincent Arbuckle.



Massey University Provost and eminent historian, reaffirmed Massey's strategic focus on food and food safety.

She has been, as always, the Centre's champion, leading it through a difficult transition time and brokering the 'new deal'. The Centre's distinctive collaborative model has been highly successful, Giselle said, and industry commitment as a significant co-investor is proof of that. Massey's food science portfolio includes the School of Food Technology and Natural Sciences, the Riddet Institute, which is a Centre of Research Excellence and world leader in fundamental and strategic scientific research in food, and the FEAST (food experience and sensory tasting) Laboratory led by Professor Joanne Hort. FEAST tests consumer responses to foods prior to market launch, which is vital insurance for companies given that 80% of new products fail in the marketplace! There is also a plethora of new plant-based products aimed at the growing number of vegans, vegetarians and flexitarians.

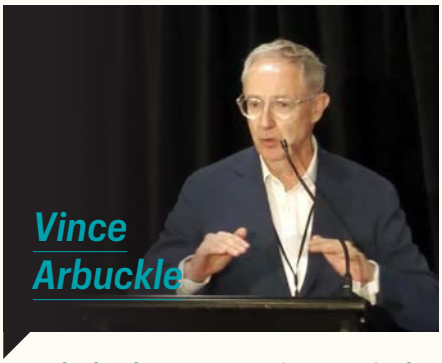
quipped that he hoped his term would end without anyone knowing that he was Minister for Food Safety.

He empathised with those working in an area where excellent work, day in day out behind the scenes, is taken for granted. And where you can never rest on your laurels. A Massey alumnus (he says his student flatmates in Palmerston North would have been incredulous at his future ministerial responsibility for food safety), Hoggard studied applied economics, was formerly President of Federated Farmers in the now historic period 2020 to 2023, and lives on the family dairy farm in Manawatu. He came into Parliament as a member of the ACT Party.

The Minister announced that the Centre, whose contract with MBIE ends in December 2024, will continue under a new three-way contract with Massey University, NZ Food Safety and industry. With a food and fibre sector worth over $50bn and rising, accounting for 80% of our export income, government investment in food safety science makes sense. But nothing can be taken for granted at a time when all government expenditure is under scrutiny. Nothing has been taken for granted. Centre director Dr Libby Harrison spelt out more detail of the new funding arrangement she has worked for so determinedly, at the end of the symposium. Suffice to say that members should not notice any reduction in service.

While New Zealand consumers happily take safe food for granted, other countries do not all have that luxury. Minister Hoggard said that the people he meets overseas at conferences always talk about our reputation for safe food. It's top of mind for them.

Our absolute refusal to compromise that reputation meant converting a NZ$30million shipment of choice kiwifruit into biogas, when mice were discovered in the hold a few months ago. The same uncompromising approach applied when assessing flood damage to our ready-to-harvest apples and pears last year. In each case, the Centre was able to offer expert advice to support the hard calls, and the industry people involved.



now the lead government investor in the Centre as Deputy Director General of NZ Food Safety, put a question to delegates that echoed throughout the rest of the day.

"Are we doing enough?"

Just as Minister Hoggard is hoping not to call attention to his food safety portfolio in a negative way, Vince's goal is never having to call the Minister on his personal cell phone. However, on the three or so occasions he's had to throw a spanner in the Minister's day, Vince has been impressed by how quickly the whole system has responded. Food safety issues are taken seriously in the Beehive and quickly make their way to the top floor. New Zealand's investment in food safety infrastructure is unique, says Vince. "It is rare for any country to have a minister of food safety, or likewise an economy quite so dependent on food exports." He says that our relatively unblemished food safety record over many years, and in particular the last 10 years, is due to new systems introduced at company and regulatory levels following the Whey Protein Concentrate (WPC-80) incident. Overall, it's good management, but also an element of good luck that keeps us safe. That joker in the pack has turned Vince into a constant worrier.

So what should we be worried about? Complacency for one. Vince pointed out that the risks are always changing because of the warming climate, shifting consumer habits (e.g. eating more raw food), pathogen evolution, new packaging formats, and ever more demanding regulations by the countries we export to. NZ Food Safety is working in concert with NZ's Department of Conservation and Biosecurity NZ in anticipation of the probable arrival of the strain of HPAI avian flu which has recently infected cattle in the US.

NZ Food Safety has a whole suite of foodborne pathogens on its books – *Listeria, STEC, Yersinia, Salmonella, Vibrio, Hepatits A* and top of the list, *Campylobacter*. They are optimistic that they will meet the goal of a 20% reduction in *Campylobacter* cases in the period 2020 to 2024, having achieved a 10% reduction by the end of 2022.

Vince wants to focus on making sure we have a well-functioning, completely integrated food safety system – a goal that aligns perfectly with the Centre's own mission.

How to develop a mature food safety culture

Lone Jespersen

In the first session on food safety culture, keynote speaker Lone Jespersen, a Swiss-based consultant, said that her research among 155 companies showed that an alarming 50% of CEOs and senior executives don't even know what their unique food safety risks are! Lone learned the hard way how important it is that food safety culture is led from the top by executives who listen to what their people have to say.

Lone says she remembers exactly how the sky and trees looked the moment she was told that sliced meat product from the company she'd been with for over 10 years was linked to the deaths of 23 people from listeriosis (Maple Leaf Foods, Canada, 2008). Everything changed from that moment, and thus began her new career specialising in food safety culture. The company realised that they'd left too much up to the food safety and quality people, and all that had to change. The human factor is all important, she says, and Lone has since devoted 15 years to helping companies get their people on board and become self-regulating. . . getting senior managers to regularly walk the factory floors and encourage staff to talk.

Getting people to do the right thing is not as simple as handing them a manual and putting them through a training course. Box ticked. Staff are no different from you. Think about your own behaviour. Do you always floss your teeth before bed, do you teeter on ladders to get that top branch sticking out, sometimes pretend to wash your hands when you're in a hurry or fib that you've checked things when you haven't? Humans are famously inconsistent. In the background there are divorces, love affairs, aged parents, chronic insomnia, money worries, office politics. . . all having an emotional effect on us. If you don't like your boss, or get any recognition for good work, some of those occasional health and food safety slip-ups might just become deliberate.

Research among 155 companies showed that an alarming

50% of CEOs and senior executives don't even know what their unique food safety risks are!

Wendy Newport-Smith

Wendy Newport-Smith, manager of the NZFSSRC, is completing a PhD on the 'interface between food safety culture and ethical leadership'.

She has interviewed 32 people in 31 New Zealand companies and learnt that production pressures can sometimes override food safety. One interviewee said, "It becomes obvious by observation that most people come to work wanting to do a good job. If they don't do a good job, it's usually because management hasn't allowed them to. In the worst-case scenario, you can get people fed up and sabotaging food – sign of a very poor culture. You have to keep reminding workers that they have a direct impact on safety. Simple messaging changed regularly helps, for example, your granddaughter is going to eat this."

Felicity Champion

Felicity Champion a change management specialist at Fonterra, described the steps the company has taken to change their food safety culture after the WPC-80 incident 10 years ago. She said "not everything landed", but the presentations by senior managers around the country were particularly effective. Up to that watershed event, Felicity said it had been "all about the metrics – how much they were producing and shipping out in what time frame." Managers now made it clear that they would back staff who brought problems to their attention – even if that meant stopping production.

The final speaker in the food safety culture section, Lynnaire Sheridan from University of Otago, said "yes(!), the leader needs to be out there front and centre", actively valuing food safety work. As a work, health and safety researcher she talked about the concept of collective mindfulness – organisations where everyone is constantly alert to risk and people take action. We all need to share in Vince Arbuckle's 'constant worry' with an equal sense of responsibility.

Says Lynnaire, "It's about getting your people to truly care – instilling a sense of responsibility that they can't leave behind." Despite the collective groan on the ill-fated flight to Hamilton the day before, she says her 'best moment' was when the pilot chose to abort the flight and turn back – not an easy or popular decision to make.

"I can't walk past a carpet with the edges turned up now. It's down to me!"

Where else can we look when seeking to establish a food safety culture? "We could be learning more from Māori," says Lynnaire. "They are a high proportion of the workforce, which will increase 20% between 2018 and 2043, and embracing tikanga towards kai could be part of the solution."

Centre Chief Scientist, Distinguished Professor Phil Bremer, chaired a session entitled

Packaging - it's not all bad.

The impression you got listening to the information-packed presentations was of overwhelming complexity, considerable technical difficulties to be overcome, and urgent pressure to meet EU and other countries' imminent regulatory demands for packaging to contain various percentages of recycled material and/or to be recyclable. Consumer pressure is driving change, but they sometimes have wrong or overly simplistic ideas about recycling and sustainable materials.

Is it any wonder they're confused? There are so many polymers with different names, attributes and additives to give them the desired functionality. People cannot differentiate between a hazard and actual risk and are susceptible to social media misinformation.

Then there are the pros and cons of fibre, glass, bioplastics, compostability vs biodegradability vs recyclability. The equations must balance carbon emissions, environmental pollution, food safety and quality, food waste, land use, recycling costs, and the cost of changing processing and packaging regimes. It's mind-boggling.

Important detail is likely to get lost in any attempt at a summary, so we recommend that you listen to the presentations on the Centre's website. As one speaker said, "the devil's in the detail". What's clear is that we need more regulation and more uniformity globally, including a common language. Our food companies will need continuing support from the science sector.

WHAT'S CLEAR IS THAT WE NEED MORE REGULATION AND MORE UNIFORMITY GLOBALLY, INCLUDING A COMMON LANGUAGE.

Emily Thomas from Fonterra showed just how hard it can be to find suitable replacements for the perfectly functional (if not recyclable) plastic materials used now, with the example of cheese which is biologically active. The live bacteria produce carbon dioxide, which must be allowed to escape without letting oxygen in. The pack must remain completely airtight. This is just one of the technical challenges Emily has before her as Sustainable Packaging Lead for our biggest food company.

Kate Parker leads Scion's packaging research. She had some interesting, if rather alarming, factoids:

- Wrapping a broccoli head in plastic film is effective at retaining the nutritionally valuable phytochemicals. 'Naked' broccoli loses 80% of its phytochemicals.
- Teabags are plastic, not fibre as some people think, and each one sheds millions if not billions of plastic particles in each cup of tea. And of course they are not readily biodegradable.
- There are 3-4mg of microplastics in every 100g of rice due to the abrasion of the rice against the inside of the pack. No doubt that applies to similar foodstuffs packaged in plastic.

Some plastic additives are endocrine disrupters. The question is, at what level do they become a risk to human health? While there's a lot of research underway into the effects of microplastics on humans and other animals, we don't yet know what we could be dealing with.

Consumers love glass, which is premium in terms of sterility and transparency and can be recycled, but it is highly intensive to produce and is heavy, so costs more to transport. Broken glass is a curse in the environment and much harder to collect. People also favour paper, card and fibre generally, but that too has its downsides. Kate says that the biggest challenge with fibre is that it's not plastic! It's opaque, and has no natural grease, gas or moisture barrier so is unsuitable for many food products and most beverages.

Kate says that when clients come to Scion seeking advice about sustainable replacements, they have two main criteria:

1. Compliance with regulations

2. Cost

In terms of recycling imperatives, the drive is towards recyclability over compostability, and monomaterials, rather than bonded layers of different types of materials which are difficult if not impossible to recycle.

Jeff Fowles, Principal Adviser Toxicology at MPI

Bottom line, it seems that New Zealand consumers don't have anything to worry about when it comes to contamination from food packaging. If anything, it seems that overseas regulators have over-reacted to the potential for risks, enforcing limits that are, in some cases, way below TDIs (tolerable daily limits) to the point where there is virtually zero tolerance of bisphenol-A, for example. There's a lot of disagreement about what constitutes safe levels.

Public 'chemophobia' is understandable given these bans in reaction to the merest suggestion of effects on fertility and puberty from plastic additives. Again, it's very hard to separate the subtleties of hazard vs risk and define what a tolerable daily limit actually means. A 2018 survey (by MPI) of 96 food samples came up with only one positive for packaging contaminants – PFHxA (one of the PFAS family) – and that was well within the TDI. A 2017 survey of phthalates and printing inks by MPI, looking across 74 sampled foods from the 2016 NZ Total Diet Study, found negligible levels of three phthalates in 15 of the sampled foods.

The NZ Total Diet Study of Toddlers and Infants, to be carried out over 2024 and 2025, will be the first of such studies to test for the following contaminants that might potentially migrate from food packaging: PFAS, phthalates, bisphenols, and antimony (associated with PET). Jeff says, "We expect these levels to be low, but the results remain to be seen." Despite Jeff's optimism, he said we must continue to be vigilant and take precautions. NZ Food Safety advises the public to:

- ***Not wash plastic bottles with harsh detergents or chemicals***
- ***Avoid dented food or drink cans***
- ***Not let cling film touch food during cooking***
- ***Keep the corner of the dish uncovered to allow steam to escape***
- ***Use only microwave-safe plastics in the microwave***
- ***Thaw plastic wrapped meat at low temperatures***

Rachel Barker is CEO of Plastics NZ.

She detailed the intense and complicated negotiations underway towards a global plastics treaty under the auspices of the UN Environmental Programme. Reducing virgin plastic packaging is a priority. The demands for minimum percentages of recycled content by certain dates – not all that far off - are sobering. "There are a lot of changes coming," says Rachel. The circumstances in every country differ, so global agreements will be translated into national action plans and regulations. If companies want to sell into Europe and other countries leading the transition, they will simply have to meet the new standards. These could be a major barrier to trade.

Recycled content will have to be validated in the country of origin. NZ Food Safety already has a working group to investigate the food safety aspects of recycled packaging.

Transitioning to sustainable packaging is a major 'work in progress', and the Centre will be on the alert for any new research that is required.

What the GenZers had to say

Born after about 1995, the GenZers are true digital natives who have difficulty comprehending the pre-silicon world where public servants slowly circulated files on trollies.

They all seem so savvy and confident. And likeable, damn it. They get scholarships to Cambridge, play jazz, have gap years in Europe and South America, write poetry, go vegan, spend a serious amount of time gaming, and want work/life balance . . . but they are far from privileged, facing the full impact of climate change and having already experienced two global crises. Anxiety is the word commonly used in association with GenZ. Copper age baby boomers find them indispensable at home and in the workplace when they get stuck in all the ways non-digital natives get stuck. But what do they really know about food safety?

A PANEL CHAIRED BY

Hamish Darling

who grew up on your dream Central Otago family orchard and was the region's Young Grower of the Year (2018), inherited his interest in food safety from his mother Helen Darling (Helen presented at the Centre's futures forum in 2022). He lives for part of the year in Bilbao, Spain, as internet internationals do. Hamish combines his on the ground knowledge and love of horticulture with high level IT navigation skills

The panel began with some GenZ vox pops captured on the streets of Auckland city by the Centre's industry liaison manager, Kyla Archer. When asked what food safety meant to them, they all came up with different concerns: pesticides, bagged salads, microplastics, seafood, not refrigerating food properly, shelf life and expiry dates, the 'danger zone' . . .

Panel Chair, Hamish Darling

Trevor Waikawa Junior, Jess Chong & Jack Hervey

The GenZ panel (we're not sure they all met the age criteria) comprised:

Jack Hervey, a molecular biologist from the Cawthron Institute. Jack is a Cambridge post-graduate and is applying his tech talents to developing biosensors that can detect algal blooms from the climate-controlled comfort of the office, instead of seafood producers having to put to sea in a southerly and dangle things over the side.

Trevor Waikawa Junior hails from the East Coast and is well known to Centre scientists through the Whakakī Lake restoration project aimed at ensuring that the eels are safe to eat. Trevor grew up on a sheep and beef farm and works in freshwater management for the Hawke's Bay Regional Council.

Aucklander ***Jess Chong***, another high achiever, is Chair of the Auckland Branch of the New Zealand Institute of Food Science & Technology. She also sits on the Board of Directors for the NZIFST and is an advocate for better "engagement, growth, and diversity in the industry".

They talked a lot about the rural-urban divide, and the estrangement of city dwellers from the realities of food production. Trevor was particularly hot on the topic of this disconnect, living as close as you can get to the agricultural and wild food gathering nexus on the remote East Coast of the North Island – an area near Wairoa which has been absolutely hammered by storms, and was recently struck by tragedy when three fishermen lost their lives at Mahia.

Which leads us naturally to the afternoon session

Climate Change: extreme weather events and food safety

chaired by Associate Professor Patrick Biggs, a member of the Centre's Science Leadership team.

Andrew Tait from NIWA put the data to what we now see happening around us with increasing frequency and intensity – fires, floods, droughts, and coastal erosion from big seas. He says glacier retreat is happening "amazingly quickly". Future predictions range widely depending on what happens to carbon emissions from now on. But there's no going back for the foreseeable future. It can only get worse, possibly very much worse. Because the land is dropping in some areas, sea level rise will be exacerbated. NIWA are constantly working on reducing the uncertainties and refining local and regional weather predictions to support government and local planning. Check out their services.

Behind the maps and stats are the individual human stories.

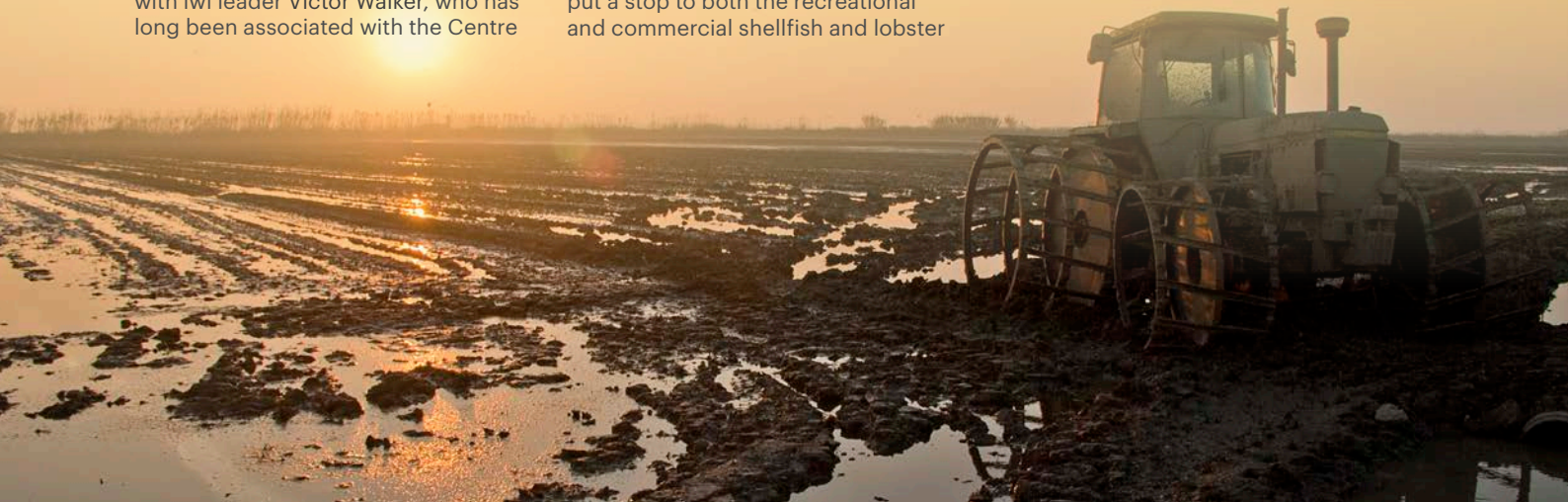
Young Taylah Mitchell from Uawa/Tolaga Bay came to the symposium with iwi leader Victor Walker, who has long been associated with the Centre through various local food safety and environmental projects. She recounted the night in June 2018 when a dam of forestry slash holding the swollen river back gave way and she awoke in the small hours to find herself in a metre of water. Outside, she saw her grandfather wading through the rising floodwater, carrying her 'nan' towards the house. Taylah rang her father in town, who told them to get out immediately, but by that time the cars were floating away. Luckily her father and sister managed to get through to rescue them, in a logging truck ironically. This almost unbelievable scenario has been repeated more than once since then, notably during Cyclone Gabrielle. There was yet another storm just before the symposium, the one that led to the loss of the three fishermen near Mahia Peninsula. Victor says the whole Coast felt that loss.

Despite these demoralising catastrophes coming one after the other, the locals are determined to carry on with the restoration of their environment, which has included 18km of riparian fencing, and planting thousands of natives on the hill overlooking historic Cook's Cove. Their goal is to return the land to what it might have looked like when James Cook, Joseph Banks and Tahitian navigator Tupaia came ashore in 1769. Victor says, "we know where we are going and what we have to do." They have recruited disengaged and disadvantaged young adults in the restoration work, which has been life-changing for many. Victor showed a photo of a group of them proudly holding their certificates from the associated training course. Scientists from the Centre, Massey University, Plant & Food Research and the Cawthron Institute have also learned a lot from the people in this incredible community.

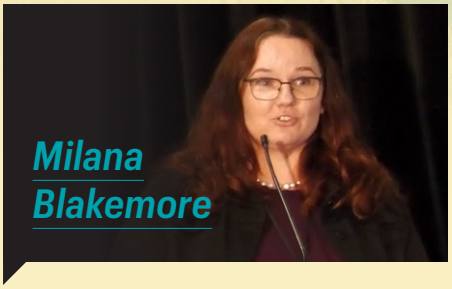
Another big hit to the East Coast economy was the algal bloom that put a stop to both the recreational and commercial shellfish and lobster fishing in some areas for seven months – right up to June this year. Lobster eat contaminated shellfish and accumulate the paralytic toxins in their gut. The toxins cannot be deactivated by cooking.

Cathy Webb from Seafood NZ said a probable contributor to the widespread bloom, if not THE cause, was the distressing-to-think-about volumes of nutrient-rich runoff lost at sea during Cyclone Gabrielle and now smothering the seafloor. The testing regime carried out during this time was paid for by the industry at a cost of some $100,000.

Then, from a zero base, there was a series of outbreaks of *Vibrio parahaemolyticus*, starting in 2019. Unusually, the first two in the Coromandel occurred in the winter months and were from mussels. *Vibrio* likes warm waters and is normally associated with consumption of raw oysters. In 2021/2 there was a significant increase in the number of cases (~60), from a large range of recreationally gathered seafood. All of this confounded the industry and has become a major focus of research for scientists at Plant & Food Research. *Vibrio* can at least be readily killed by heating. 2021/2 was a very hot summer, with an accompanying marine heatwave, so though we can't say for sure, the finger is pointing at climate change.



"While there is ongoing trauma and loss for many people in Hawke's Bay and the East Coast, the extent of the recovery has been remarkable, thanks to the hard work and dedication of the growers."



Milana Blakemore, Manager of Food Risk Assessment at NZFS, was "just a baby" on the NZFS team when she found herself in the eye of storm, dealing with Cyclone Gabrielle and situations that were new to everyone. Milana's boss happened to be away at the time, so it was down to her. Milana had her own experience of catastrophic flooding as a child in the Balkans. She and her family moved to New Zealand in 1998, from a rural area where they were almost completely self-sufficient, including milling their own flour and producing sunflower oil. When the floods came to her village and the surrounding region in the late 1980s, they lost their animals, animal feed and food stores, which they absolutely depended on to feed their families. After a couple of years of recovery, and lessons learnt from the flood, her village decided to prepare against future weather events. Milana says, "Even then, when the talk of climate emergency was not a common topic of discussion, the residents wanted to ensure that should flooding happen again, the village would be protected. Among other things, they changed how animal feed and seasonal preserves were stored and dug canals spanning the village to help with storm water drainage.

Now, post Gabrielle, people were depending on Milana for guidance on a whole range of questions. "It was a very testing time." After the more immediate crisis of rescuing people from rooftops and supplying survivors with food and shelter, attention turned to the fate of what was left of the ready-to-harvest crops – what wasn't lining the riverbanks or lost at sea. Food producers, especially the horticulture sector, needed answers urgently. You didn't need a PhD in toxicology or microbiology to know that the floodwaters and silt could contain any number of physical, chemical, or biological hazards, but the mix could have varied widely from place to place, and over time. Milana and her team did their best to provide timely guidance to many sectors including horticulture, honey, home kill and food rescue organisations. Although no one was really prepared for Cyclone Gabrielle, people in government, science, and locally on the ground, rose to the occasion. Milana is now promoting even more collaboration and sharing of work and research, and encourages all businesses, big and small, to take action to prepare for extreme weather events. Small changes can make a big difference should we be faced with more adverse events, whether from an earthquake, flooding, or volcanic eruption.

Danielle Adsett of NZ Apples and Pears (NZAPI) was also right at the centre of the 1 in 550-year event (NIWA's calculation). Fortunately, NZAPI had recently mapped the orchard boundaries so they knew exactly which ones were affected and to what extent. Even better, they had just completed a comprehensive food safety project which gave them clarity about the risks and what they needed to do, right down to specifying the concentrations of sanitisers and likely *Listeria* hotspots. Graham Fletcher at Plant & Food Research had been the lead on that project, so Danielle immediately contacted him for help. Graham and Anne-Marie Arts from United Fresh and Chair of the Centre's Horticulture Task Force quickly arranged dissemination of best practice protocols, whilst also taking orchard samples to understand the extent of food safety risks. Help came from all quarters, including Tumu Timbers, who sanitised all the wooden apple bins.

About half of the 7000 hectares of apple and pear orchards in the region suffered total or partial crop loss. Sadly, many orchards were beyond recovery and have since been removed. While there is ongoing trauma and loss for many people in Hawke's Bay and the East Coast, the extent of the recovery has been remarkable, thanks to the hard work and dedication of the growers. The remediation work continues, as growers now look ahead towards the next season. Danielle says, "Watch this space as the region is about to become a wonderland of pink and white blossom."

Michelle Danyluk came all the way from the University of Florida [sponsored by the International Association for Food Protection (IAFP) and organized at this end by the New Zealand Association for Food Protection (NZAFP)] to share the results of various studies into soil contamination after flooding. Hurricanes are so habitual in Florida that they flood the low-lying growing areas beforehand to limit the damage. The fields turn into wetlands, with consequential faecal deposits from the birds who flock there. The studies measured contamination by *Salmonella* and *E.coli* at progressive distances and times from the ingress of water onto the land. Obviously this is to inform the safe time limits for replanting, which has become highly topical after the cyclones of 2023. The hope is to provide our own growers with clear guidelines for future extreme rain events, which are sadly inevitable.

Is Obesity a food safety issue?

A panel discussion chaired by Kim Hill

This was a topic only Kim Hill could make entertaining, while treating it seriously at the same time; only Kim could get away with such irreverence. She wasn't about to tip toe around the subject when, she says, two million New Zealanders will be classified as obese by 2030. Surely the threats posed by a few generally well-controlled foodborne pathogens are nothing compared to the health impacts on 30% to 40% of the entire population who are seriously overweight. Shouldn't the aisles upon aisles of all those fatty, sugary foods be regarded as the number one food safety issue?

Kim's panel members were as calm and articulate as only people who really know their stuff can be under such penetrating inquiry. They lived up to the promise of the promotion: no evasions, euphemisms or government speak. No one left with any doubt as to their respective positions on the subject.

THE PANEL COMPRISED

Lone Jespersen, Principal and Founder of Cultivate SA, introduced earlier in the section on food safety culture, calls a spade a spade - she is all for a sugar tax, compulsory health star labelling, and developing a culture that normalises physical activity.

Professor Rachael Taylor holds the Karitane Chair in Early Childhood Obesity and is Head of the Department of Medicine at the University of Otago. She is interested in how sleep, diet, physical activity and screen time influence health and wellbeing in children and adolescents. Rachael is trying to determine more accurate ways of measuring these key lifestyle behaviours, e.g. screen time, so that the true relationships with health outcomes can be determined.

Her research has revealed a strong correlation between lack of sleep and obesity in children and adolescents. It seems that well-rested people naturally make wiser food choices. Rachael wants to get this message to parents: sleep better, feel better, eat better. The good news is that obesity is declining across the board in the pre-school cohort. She says this is possibly linked to a reduction in maternal smoking during pregnancy, though the mechanism is unknown.

Lisa Te Morenga is Professor of Māori health and nutrition at Massey University in Whanganui-a-Tara, a Rutherford Discovery Fellow, and co-Chair of Health Coalition Aotearoa. Her research interests relate to supporting individuals, whanau and communities to achieve good health through being able to access healthy, affordable food. Lisa's work with Health Coalition Aotearoa is to lead the advocacy for public policies to limit the harms of unhealthy food and drinks, tobacco products and alcohol, based on research findings.

Lisa says that talking about obesity is not helpful when advocating for interventions to support a healthy food environment in media stories. The term has really negative connotations and prompts criticism from those who would otherwise be allies in the social justice area. Talking about obesity can sound like we are blaming individuals for making poor choices. Our critics argue that we are demonising food and are putting too much focus on what people eat, while ignoring the harmful effects on health of weight stigma. This is a really important issue and a valid criticism.

But it's also important to acknowledge that overeating unhealthy foods contributes to body fatness and it's naïve to say that there are no health effects from being obese. However, she doesn't want us want to focus on the food choices people make because many people do not have a lot of choice. It's hard to choose healthy foods when you don't have much money or time and live in low-income neighbourhoods that are not well served by shops selling affordable healthy food, like supermarkets. That's why we need strong public health policy that allows people to choose healthy food when they want it. When asked by Kim if she could choose just one intervention, she opted for a universal healthy school lunch programme.

Dr Roger Cook is Acting Director Food Science and Risk Assessment at New Zealand Food Safety (NZFS). His team leads New Zealand's regulatory food safety risk assessment and food composition/labelling initiatives with a research and outreach portfolio to support New Zealand's domestic and export food safety regulations. While disappointed that the voluntary Health Star Rating (HSR) system introduced in New Zealand and Australia in 2014 is not more widely used on intended food products, Roger is pleased with consumers' knowledge and use of HSR. A consumer insights survey NZFS carried out last year showed HSR has considerable influence over consumer choices (particularly when deciding which product to buy where there are several in the same category, e.g. muesli bars), which in turn will influence companies to reformulate products with less fat, salt and sugar. There is work underway on trans-fatty acids, sugar-sweetened beverages, and improving the nutritional quality of foods for infants and toddlers. Roger says the stigma on 'processed foods' is unwarranted as it is the nutritional value that is important, not whether it is processed. Most foods, including milk, are processed for good reasons. "The dose makes the poison," he says. "It's about the amount you eat, but people must have good information." Roger agrees with Lone about focusing on the exercise side of the scales.

You can hear this entertaining, pull no punches discussion on the Centre's website: **https://www.nzfssrc.org.nz/events/annual-symposium/#/** or visit **https://youtu.be/vQAs6q05btc**

Women in Science Breakfast

with Kara Loewentheil

IS THIS YOU?

A mind buzzing with the next family birthday (it's always you that has to buy the presents), 'post-it' notes on your laptop (must buy chocolate chips for the morning tea muffins since store-bought will not do), putting up your hand too readily to take the meeting minutes, agreeing to review that extra report, getting the coffee, appeasing a colleague to reduce their frustration, helping with the dishes . . . amid the constant white noise, the random thoughts and feelings come at you

. . . trying to remember what you wore to the last departmental gathering (heaven forbid you wear the same thing); feeling bad about letting a little typo slip; always feeling conscious about your weight; a constant background fear of inadequacy and sense of shame; saying everything is all right when it's not; overreacting internally to the slightest criticism; saying sorry, sorry, sorry . . . for what?

*If any of this is familiar, it's time to UnF**k your brain, with help from impressive New York-based author, master feminist coach and founder of the School of New Feminist Thought, Kara Loewentheil.*

ESR scientist, Nikki King, discovered Kara's podcast series and arranged for her to speak to 60 attendees at this year's Women in Science breakfast gathering.

The event was sponsored by Fonterra and AsureQuality, whose generous contributions also paid for each attendee to receive a copy of Kara's book, Take back your brain.

It's not that Kara's recommending that all 'people pleasers' become stroppy, edgy, uncooperative and uncaring. But, says the blurb on the inside cover, "women absorb a lifetime of messages that say your worth is defined by your looks, your accomplishments, and how well you take care of everyone around you . . . The result is that women end up feeling anxious, guilty and vaguely ashamed of themselves no matter how much they do for others or achieve for themselves." There won't be many women who will argue with that statement.

Attendees challenged Kara with questions about dealing with difficult work situations, colleagues and non-work relationships, where they pushed themselves to please others often to their detriment. Those attending were equally challenged to consider how the negative, punishing self-talk is directing their own behaviour, and how they might change entrenched thought patterns.

Listeria monocytogenes a persistent killer

Centre Chief Scientist, ***Distinguished Professor Phil Bremer,*** is frustrated that despite everyone's efforts across industry and government, rates of listeriosis are not budging. In response, the Centre has organised a one-day workshop in Auckland (University of Auckland Grafton Campus), Thursday 26 September, to take participants through the fundamentals of *Listeria monocytogenes* management. Whether you're in production or retail, if *Listeria* could pose a risk for your company, don't miss this practical learning opportunity.

We don't like scare tactics, but in this case the end justifies the means. Lone Jespersen opened her presentation at the Centre's 1 July annual symposium with the recollection of her trauma at being told that sliced cold meat from the company she worked for was linked to 23 deaths from listeriosis. She now counsels companies around the world on the importance of developing a mature food safety culture, led from the very top, where staff are motivated and empowered at every level to self-regulate.

In New Zealand, listeriosis is a quiet, steady sniper.

Phil reports that during 2022, 39 individual cases of listeriosis (32 non-perinatal related cases and seven perinatal* cases) were reported in EpiSurv, with four resulting deaths in the 70+ age group and two deaths of unborn babies. EpiSurv is a surveillance database for notifiable diseases operated by ESR on behalf of the Ministry of Health.

> During 2023, **37** individual cases of listeriosis (**34** non-perinatal related cases and three perinatal cases) were reported in EpiSurv with five deaths in the older age groups, and two newborns.
>
> The case count for 2023 is not official yet, but is no improvement over 2022.

Forget the numbers for the moment and contemplate the grief of those bereft parents, whether of stillborn babies (some near term) or newborns. Imagine that just one incautious move – not washing hands or changing gloves, not checking the refrigeration temperature, keeping a prepared salad for one day too long – were to cause the death of someone's father or longed-for baby.

We can't easily get rid of *Listeria* – it's everywhere in the environment. Of course, heating destroys it very easily, but somehow, *Listeria* is killing New Zealanders or making them very ill. *Listeria* has been found in a wide range of foods including unpasteurized milks and cheeses, ice cream, raw and processed fruits and vegetables, raw or undercooked poultry, sausages, deli meats, and raw or smoked fish and other seafood. Although the risk of these foods to immunocompromised people and pregnant women is well publicised and communicated by GPs and midwives, people are still getting sick, with the consumption of contaminated food believed to be responsible for most if not all cases of listeriosis.

Phil says, "It is important that the food industry does all it can to ensure that the foods they produce do not contribute to the incidence of listeriosis in NZ. Let's learn from each other and help to drive that flat line graph to zero. The solution may require the sort of wholesale change in culture that Lone Jespersen came to New Zealand to tell us about.

Registration for the NZFSSRC Listeria Workshop is now full. However, if you would like to be waitlisted please email ***Michal Dunn: m.j.dunn@massey.ac.nz.***

*perinatal refers to the weeks immediately before and after birth

PROFILE

Dr Claire McDonald

Operational Research Manager

NZ Food Safety

Dr Claire McDonald has been with the Ministry for Primary Industries (MPI) for over eleven years, since she first came to New Zealand. It has made very little imprint on her native accent – soft and melodic Glaswegian.

She started out as a risk assessor focusing on plant biosecurity, and her statistical skills were soon applied to tackling food safety issues for New Zealand Food Safety (NZFS). As Manager Operational Research she is a central figure in the food safety science network, managing around 30 food safety research contracts, some of them with NZFSSRC. Her job involves a high degree of complexity and deep understanding of the research design, analysis and management process – spanning risk assessment (chemical and microbiological), and food composition and labelling.

Claire's early interest in science centred on insects. She studied Zoology at the University of Glasgow (UK), followed by a Masters in Biodiversity and Conservation and a PhD in Paeleoecology and Entomology at the University of Leeds. The PhD took her to Chile to search for evidence of insect life that could be compared to insects that once lived in Antarctica 50 million years ago. She says studying the incredibly complex ecology of insect life was good training for her current job: "Studying ecology means having to think of a variety of complicated factors, some you know about and can measure, but many you do not. These have to be considered in the study design and data analysis to draw conclusions. This has helped me provide advice on a variety of topics over the years and ensures I ask the right questions at the planning phase of food safety science projects."

The interview with Claire revealed she has an amazing talent you could never have guessed at. She is adept at climbing trees – big ones! This meant she could gather leaf and insect samples from the high treetops to study the bite marks unique to different insect species. Those distinctive bite marks are also evident in fossil leaves, revealing what was present in the past and what this suggests about the paleoclimate when compared to modern day analogues in South America.

Her early work for MPI, among other things, related to establishing a science-based definition that could be used to ensure the authenticity of mānuka honey exported from New Zealand. This was a natural space for Claire as it meant using a combination of insect ecology and statistical skills and applying them to a food product. The science-based definition was the result of a 3-year multidisciplinary science programme to establish a definition that could be used to separate mānuka honey from other honey types.

Claire has to somehow keep tabs on progress with her entire portfolio, but current NZFS priorities include the ongoing drive to reduce *Campylobacter*iosis and listeriosis. The NZFS team are working on an awareness campaign for the Health Star Rating (HSR) system introduced in 2014. "Findings from NZFS's recently published Consumer Food Safety Insights Survey show that 83% of consumers say they use HSR when buying a packaged food or drink for the first time and 80% say they completely or somewhat trust the HSR system. We are working with industry and our colleagues at Ministry of Health to increase uptake by producers to meet consumer demand."

Claire is also part of an MPI Artificial Intelligence technical advisory group, which is a whole new and intellectually challenging area.

And last but not least, a major research programme now underway is the Total Diet Study of Infants and Toddlers, which will test for 365 chemicals and be completed by the middle of 2025. "It's exciting to work across a variety of interesting and impactful projects," she says.

In addition to this impressive workload, Claire has her own toddler to manage, no doubt learning to speak with the local accent despite her mother's influence.

A VIRTUAL CENTRE

The NZFSSRC pools the existing resources of partner organisations from across New Zealand. Current NZFSSRC partners are:

INDUSTRY MEMBERS:

- AsureQuality
- Bakels Edible Oils NZ
- DCANZ
- Eagle Protect
- Eurofins
- Fonterra
- Food & Grocery Council
- Food Standards Australia New Zealand
- GSF Fresh Ltd
- Hill Laboratories
- Horticulture NZ
- Leaderbrand
- Mataura Valley Milk
- Meat Industry Association
- Mount Cook Alpine Salmon
- NZ Apples and Pears Inc
- NZ King Salmon
- Oceania
- Open Country
- Poultry Association of New Zealand
- Sanford
- Seafood NZ
- Tatua
- United Fresh
- Woolworths
- Westland
- Zespri

RESEARCH PARTNERS:

AgResearch – āta mātai, mātai whetū
ESR – Science for Communities – He Pūtaiao, He Tāngata
Cawthron Institute
Plant & Food Research – Rangahau Ahumāra Kai
Massey University – University of New Zealand
Lincoln University – Te Whare Wānaka o Aoraki
University of Auckland – Waipapa Taumata Rau – New Zealand
University of Otago – Ōtākou Whakaihu Waka

GOVERNMENT SUPPORTERS:

Ministry of Business, Innovation & Employment – Hīkina Whakatutuki
Ministry for Primary Industries – Manatū Ahu Matua

New Zealand FOOD SAFETY SCIENCE & RESEARCH CENTRE

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If you are interested in becoming a member of NZFSSRC, contact Industry Research Liaison Manager,

Kyla Archer
k.archer@massey.ac.nz

and find out what the Centre has to offer, including significant research co-funding and professional development opportunities.