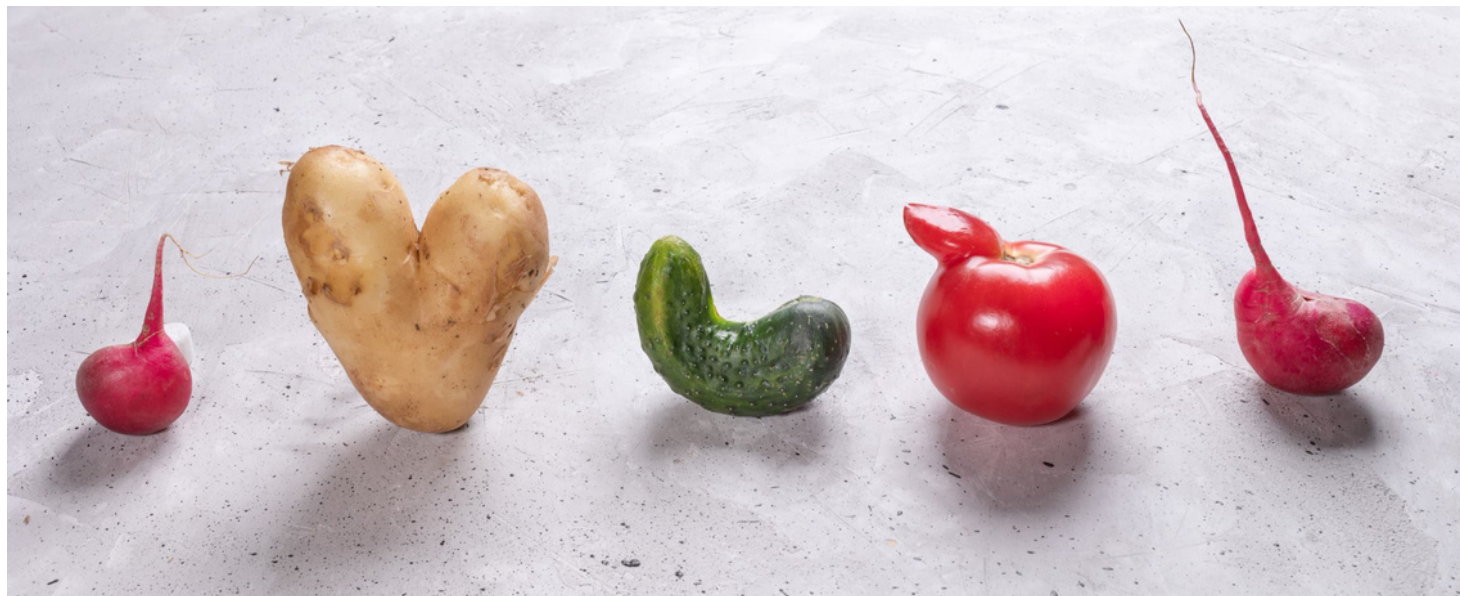


WASTE BYTES

University of Otago Food Waste Innovation Newsletter 6



REDUCING THE VOLUME AND IMPACT OF FOOD WASTE.

Food Waste Innovation measures food waste, develops reduction strategies, applies innovative technology, and works to modify producer and consumer behaviour. We work collaboratively with stakeholders and supporters in the public and private sectors.

Note from the Director

Associate Professor Miranda Miroso

This week I shared a room with a group of executive industry leaders who are prioritising food waste prevention and reduction. Joining us we also had the Prime Minister, her Chief Science Advisor and the Chief Executive and

Secretary for the Ministry for the Environment. What a buzz! It was not that many years ago that my attempt to harness interest to tackle the food waste issue among attendees at the NZ Institute of Food Science and Technology conference resulted in an all but empty room. We were obviously ahead of the game then, but we've been able to significantly shift the dial and there is now a real appetite to address food waste among our business community. The occasion for celebration this week was the official launch of the "[Kai Commitment](#)", the flagship project of our NZ Food Waste Champions 12.3 Trust. This is a voluntary agreement between food businesses to reduce food waste and related emissions across Aotearoa's food value chain. Those who sign up set targets, measure, and act to prevent and reduce food waste. We have launched with six leading businesses onboard; Countdown, Fonterra, Goodman Fielder, Silver Fern Farms, Foodstuffs and Nestle and are now inviting new food businesses to join these initial signatories on their food waste journey.

I would like to take this occasion to urge our business and research

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communities to combine forces to ensure meaningful change is achieved. Researchers can provide businesses with insights to help develop successful reduction strategies, apply innovative technology, and work to modify employee and consumer behaviour. Researchers can also assist with assessing the impact of specific interventions and help feed these results back into the international research community to improve the global evidence base of what works and the return on investment.

They say good things take time. It was back in 2020 that a voluntary agreement on food waste was identified as a key action in my "Miroso" report to the Parliamentary briefing on food waste. I am so excited that almost three years later, this project has now officially come to life. Congratulations to everyone involved!

Ngā mihi, Miranda

RESEARCHER SPOTLIGHT

Graham Eyres
Food Science



What is your background?

I am a food scientist with a background in flavour chemistry and analysis. I completed both my BSc Honours and PhD in the Department of Food Science at the University of Otago. My PhD research focused on analytical methods to

characterise the aroma-active compounds in hop essential oils. I spent 5 years working for the Sensory and Consumer Science research group at CSIRO in Sydney. My passion is about understanding what makes food and beverages taste and smell the way they do; in particular I love hops and beer and am a qualified beer judge.

What is your leading research focus?

The objectives of my research is to understand the factors that influence the sensory perception of flavour in foods by investigating the interactions between food, food processing, flavour chemistry and sensory science. My expertise is applied in a range of projects including including (1) the impact of food processing on food quality, (2) impact of ingredients and fermentation on beer flavour and quality, (3) analysis of volatiles in exhaled breath as a non-invasive measure of metabolism and health status, and (4) analysis of volatiles in vaping e-liquids and aerosols.

What are you working on at the moment?

I am leading a major project funded by an MBIE Smart Idea application on how to extract natural flavour compounds from waste streams in the dairy industry, such as in the production of milk powder.

What interests you about food waste?

My interests in food waste research are the evaluation and minimisation of waste streams from the brewing industry and potential upcycling opportunities, such as working with Emerson's Brewery for utilisation of spent hops.

POSTGRADUATE SPOTLIGHT

Molly Goodisson
Food Science



What is your research topic?

To understand the opportunities for utilisation of fruit loss and waste in Central Otago with local fruit processors and growers.

What brought you to Otago?

I first came to Otago because of the student culture, stunning outdoors and close proximity to the mountains. These have all made my university experience down here epic. The food science course also seemed broader than others I looked at in terms of learning, but close in terms of community which has also made my learning experience feel supported and unique.

What is the purpose of your research?

I am working with the Central Otago District Council (CODC) to come up with some recommendations of how the region could better utilise its processors and resources to reduce fruit loss and waste. The CODC identified that that, on average, 12.8% of total fruit grown in the region was either lost or wasted at the grower's end of the supply chain. The CODC saw that the reduction and better utilisation of this loss and waste as being a commercial opportunity for the region and set in place a research group to investigate how best to reduce it.

What does your research involve?

I conducted 10 interviews in Central Otago with a variety of local processors, to discover the key factors impacting on their current and future utilisation of regional resources and the opportunities they believed existed decrease fruit loss and waste. In addition, interviewees were asked about the type of equipment and storage they use, whether it is utilised year-round and where possible, if they would be willing to share it. I used this data to come up with some recommendations for the CODC on how they can better utilise the processors and surplus fruit to reduce regional fruit loss and waste.

THEME NEWS

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NATIONAL FOOD WASTE SUMMIT

On International Day of Awareness for Food Loss and Waste, Food Waste Innovation participated in the second annual National Food Waste Summit - Te Hui Taumata Moumou Kai o Aotearoa. The summit was put on by WasteMINZ, in collaboration with NZ Champions 12.3 in Pōneke/Wellington with speakers from across the sector and the motu. We had great representation from theme members at the summit, our steering committee members Phil Bremer, Sheila Skeaff, Miranda Miroso and Trixie Croad were all in attendance, as well as PhD student Grace Clare. Our international representative Francesca Goodman-Smith was not able to be there in person, but gave a recorded presentation about the future of the upcycled food sector. Food Waste Innovation hosted the 'Student Showcase' session, where 10 of our postgraduate students presented on their research projects. Eight students recorded presentations and Trixie and Grace spoke in person. We had some great feedback on this; attendees were really interested to hear about the range of research happening within the theme, including research in the upcycled food space, on food waste in primary production, and on the social value of food rescue, among other topics. Our Director, Associate Professor Miranda Miroso once again played an integral part in the summit, outlining what we know about food waste at each stage of the supply chain.

Overall we had a great day. It was awesome to see the growing enthusiasm and range of solutions in this space. A noticeable shift from last year's summit was the participation from central government including MfE, MPI, and the Office of the Prime Minister's Chief Science Advisor. Its great to see this issue getting traction with central government agencies!

A huge mihi to the WasteMINZ and NZ Champions teams for putting this together. One News came along to capture some footage for a news story on food waste, which aired on their program on the following night. See the news item [HERE](#).



Trixie Croad presents her research during the student showcase session.

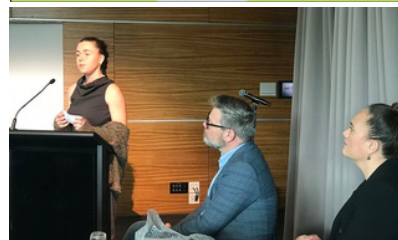
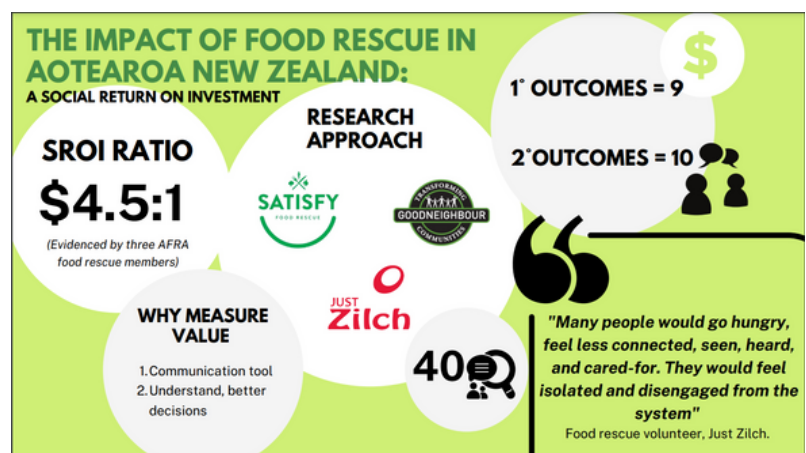


The team with Chief Science Advisor Dame Juliet Gerrard. (From L2R: Grace Clare, Phil Bremer, Juliet, Miranda Miroso, Trixie Croad)

AFRA HUI: SROI REPORT LAUNCH

Ealier in September, AFRA (Aotearoa Food Rescue Alliance) held their annual Hui. A highlight of the Hui was the launch of a research project, funded by AFRA, and carried out by Food Waste Innovation PhD student Grace Clare, along with associate investigators Dr Louise Lee and Dr Grayden Diprose, which measured the social impact of food rescue in Aotearoa. Both quantitative and qualitative impacts of food rescue were measured, including a social return on investment rate of \$4.50 for every \$1 invested in food rescue in Aotearoa. Lead researcher Grace Clare presented these research findings for the first time at the AFRA Hui. "The AFRA Hui brought together food rescue members, AFRA board members and allies, including government, engaged and interested in food rescue. It was a great showcase of the vital work these organisations are doing and an honour to present my research which values their work" says Grace.

Find out more about this project on [AFRA's website](#).



Grace Clare presenting her research at the AFRA Hui.



The research team (from L2R: Grayden Diprose, Grace Clare, and Louise Lee)

THEME NEWS

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OTHER NEWS

Disco Soup Day by Slow Food Youth Otago:

While theme members were at the Summit in Pōneke/Wellington, on International Day of

Awareness of Food Loss and Waste, student group Slow Food Youth Otago (SFYO) put on a Disco Soup event on campus. "In the warmth of the central library building, on a cool and wet day, we served warm, nutritious soup alongside an abundance of bread that was donated by the amazing Kiwiharvest." says SFYO president Gabby Arnott. "Although the event was groovy and great fun, the message underlying the day was a very important one: Aotearoa households are wasting too much food. Hopefully through some waste-saving recipe ideas and a stomach full of delicious kai, we have prompted some students to think how they may be able to save some food waste in their flats" says Gabby. Big thanks also to Sarah in the Food Science Lab for providing facilities and equipment for the making and serving the soup. All vegetable scraps not used in the soup were composted at Pōpopo Wormporium at Otago Polytechnic. "That's what we're about" says Gabby, "nourishing ourselves and Papatūānuku".



SFYO executives MJ and Gabby serving soup and bread

Francesca Goodman-Smith's food waste journey: Food Waste Innovation's International Representative was interviewed by the University of Otago's Alumni communications team about her journey in the food waste world since graduating from Otago with an MSc. Read about Francesca's amazing and successful journey to a career in food waste in the Bulletin [HERE](#). Recently Francesca has added yet another achievement to the list, being awarded the Winston Churchill Trust Fellowship and will travel to the US and Europe in 2023 to conduct further research in the tucycled food space. Congratulations Francesca!

Food Waste Innovation in the Media: Postgraduate student Sian Menson and her project looking at spent hops in collaboration with Emerson's Brewery were featured in the Otago Daily Times. Sian and Emerson's are looking at how this byproduct of the brewing process can be utilised so it doesn't go to waste. Read the ODT article [HERE](#). Also featuring in the Otago Daily Times, Technical Subtheme leader Professor Phil Bremer has been appointed as one of five 'Poutoko Taiea' or 'distinguished chair's'. This role is a four year fixed term title awarded to the University's highest achieving Professors. Congratulations Phil! see the article [HERE](#).



4th year student Sian Menson in the lab.

Food Waste Innovation investigators awarded \$1 million: Some of Food Waste Innovation's principal investigators have been awarded \$1 million over three years from the MBIE Endeavour Smart Ideas fund to investigate the recovery of high-value, natural flavour compounds from various waste streams produced by food processing plants. This project, led by Dr Graham Eyres and investigators Professor Phil Bremer and Research Associate Professor Pat Silcock, will provide technical innovations for creating value from waste streams in the food industry. We look forward to seeing this work progress. Congrats to the team!

NEW RESOURCES

Upcycling - Great taste from coffee waste: This essay written by 4th year student Brian Thong won 1st prize in the NZIFST essay competition and was published in their magazine, 'Food New Zealand'. "If there is sufficient interest, a significant amount of waste can be redirected into value-added products, benefitting the consumer, the producer, and planet Earth." See the resource [HERE](#).

The future of brewers spent grain – beyond crackers: This essay, written by fourth year Food Waste Innovation student Sian Menson, won 2nd prize in the New Zealand Institute of Food Science and Technology essay competition and was published in their magazine, 'Food New Zealand'. "By upcycling spent grain into crackers awareness is brought to the consumer, and shows innovation in how to transform these low value goods but upcycling alone cannot deal with the whole problem". See the resource [HERE](#).

Student Showcase Presentations: Eight Food Waste Innovation students recorded presentations based on their research projects which were shown at the recent National Food Waste Summit. We have now made these presentations available in our resource centre. See the resource [HERE](#).

Food Waste Hacks Podcast: Food Waste Innovation Director Associate Professor Miranda Miroso sat down with Lizzy from the Sustainability Sussed podcast to talk about food waste. See the resource [HERE](#).



4th year student Molly Goodisson recording her presentation for the Food Waste Summit.

