

University of Otago Food Waste Innovation



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

I recently attended Fielddays in Mystery Creek, near Hamilton, where I had the opportunity to discuss food waste with MPs who have portfolios relevant to our agricultural and primary sectors. It was inspiring to see their passion for this issue, regardless of their political affiliations. One MP's direct question, "What can the government do to help?" has prompted me to revisit a list of 40 recommendations I made to the Environment Committee in 2019. I'm pleased to see that progress has been made in certain areas. We will shortly have a national definition for food loss and waste, and efforts are underway to establish a detailed national food waste baseline. The government has supported initiatives such as the NZ Food Network and the Aotearoa Food Rescue Alliance and is investing in

other large-scale behaviour-change programs. Household food waste collections are being implemented across the country, and plans are being made to ensure businesses are ready to separate food scraps from general waste by 2030. However, there are still many recommendations that require attention. I urge the government to consider these during its policy development process. A coordinated interagency engagement on food waste, a national-level reduction strategy and implementation plan, a quantitative evaluation of different solutions, increased investment in prevention at all supply chain stages, a ban on food waste from landfill, mandatory food waste reporting, and adjustments to food labelling and packaging practices are all crucial. It is essential that these actions are supported by research

evidence. Therefore, my top request to the government is to provide funding for our country's remarkable researchers. This would be a valuable and safe policy option for all parties to consider leading up to the election. Let's work together to address Aotearoa's food waste crisis and create a sustainable future.



Ngā mihi, Miranda.



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RESEARCHER SPOTLIGHT



Professor Indrawati Oey,
Department of Food Science

Kia ora Indra, would you like to tell us your academic background?

I am Prof. Indrawati Oey, the Chair of Food Science and former Head of the Food Science Department at the University of Otago. I have been actively involved in Food Waste Innovation initiatives throughout my career. Before my time in New Zealand, I held the "Associate Academic Personal" position at KULeuven in Belgium from 1994 to 2009. I also served as the Senior Project Leader of the Research Foundation - Flanders (Belgium) from 2001 to 2009.

Please describe your research interest/area of research.

At the University of Otago, I have spearheaded Pulsed Electric Field (PEF) technology research, particularly in developing sustainable and environmentally-friendly processing strategies. My work primarily revolves around utilizing High Hydrostatic Pressure and PEF to produce safe, healthy, and nutritious foods that are flavorful and have minimal energy usage and waste.

How does your research correlate with Food Waste Innovation?

One prominent application of this technology lies in the potato industry, as showcased through our research funded by MBIE as part of the Food Industry Enabling Technologies (FIET) program. Collaborating with PotatoNZ and various industry partners, we have successfully demonstrated that PEF treatment can soften potatoes during the processing of fries or chips, eliminating the need for energy-, water-, and time-intensive parboiling. PEF-treated potatoes exhibit improved processing characteristics, such as reduced breakage, more even cooking, lower oil absorption, and uniform browning when fried. This innovation has resulted in higher quality, increased yield, and reduced waste. Notably, McCain Foods and Talleys have already adopted this technology.

What actions do you take against food waste?

Currently, my focus is on exploring the application of this green technology for sustainable food production in Aotearoa. Check out the ODT's recent article - link [here](#).

POSTGRADUATE SPOTLIGHT



Grace Peterson,
Department of Human Nutrition

Kia ora Grace, would you like to start by telling us a bit about your background?

Kia ora, I am Grace Petersen, currently studying for my Master of Applied Science in Advanced Nutrition Practice. I am originally from a sheep and beef farm in Central Hawke's Bay and understand the importance of our country's agriculture and horticulture sectors. Over the past four summers, I have worked in a crop monitoring role in the apple industry, increasing my understanding of this sector.

Would you like to tell us about your recent research project with the Food Waste Innovation theme?

My recent project involved working with Onions New Zealand, an organisation representing 85 commercial onion growers and 18 exporters, who contacted Food Waste Innovation to facilitate their goal of 'sustainable growth and profitability for onion growers and exporters'. The project aims to add value from waste and support sustainable food futures. The project will complement work for the Sustainable Food and Futures' Humble to Hero Programme', aimed at differentiating our New Zealand onions from those produced worldwide.

What were some exciting research findings?

On average, 12.5% of onion products sent for processing were declared as waste, with the composition of onion waste reported as approximately 36% leaves and skins, 20% 'skinner' (damaged outer layers), and 16% bulbs. Most growers (95%) supported further work to convert waste into valuable products for their business.

Finally, to end, what is one piece of advice you could give to someone wanting to reduce their food waste?

Chop your onions, including the skin, for soups, stocks, or gravies, as it not only saves time but also enhances the flavour and immunity of the food. The onion skin contains the most nutritionally beneficial properties.

NEW PROJECT: AOTEAROA FOOD WASTE BASELINE

Food Waste Innovation has secured a contract with the Ministry for the Environment to tackle the pressing issue of food waste in New Zealand. Led by our co-director Sheila Skeaff, we aim to estimate the extent of food loss and waste in our country. This project is no small feat, given the scale of the issue. The scope of the measurement is intended to be broad and aims to capture all imported or domestically produced and sink throughout the food supply chain.



From left to right: Grace Clare, Professor Miranda Mirosa, Professor Phil Bremer, and Professor Sheila Skeaff.

"It includes food waste happening in processing or manufacturing, at the wholesale, retail and redistribution stages, and food wasted at home or out-of-home during preparation and consumption", - Sheila explains. Since the announcement, Sheila recently shared her insights in an interview with Jesse Mulligan for RNZ's Afternoons show - listen to the interview [here](#). The ODT has also covered the latest updates on our project - read the article [here](#).

WASTEMINZ CONFERENCE 2023

Our director, Miranda, has been busy spreading awareness about food waste! Recently, she took the stage as a keynote speaker at the WasteMINZ conference in Hamilton. She delved into the crucial questions surrounding food waste, addressing topics such as responsibility, quantities and drivers of food waste across the supply chain, successful prevention initiatives, the need for urgent action, and how each individual can make a difference in combating Aotearoa New Zealand's food waste crisis.



Theme director Miranda Mirosa delivering her keynote speech at the WasteMINZ conference.

REFED FOOD WASTE SOLUTIONS SUMMIT

My name is Grace Clare, and I am the new manager of Food Waste Innovation. I recently had the opportunity to attend the ReFED Food Waste Solutions Summit in St. Louis, Missouri. This premier food waste event brought together food businesses, funders, solution providers, innovators, policymakers, and non-profits to drive the adoption of food waste solutions. It was inspirational and motivating in so many ways.



Food Waste: The Past, Present, and Future panel discussion in action.

One of the conference's highlights was visiting Operation Food Search, an independent food rescue organisation committed to meeting immediate needs, providing nutrition education and championing change. The conference also featured a valuable workshop that addressed research gaps in food waste, emphasising the importance of data and reporting, system knowledge, and collaboration. The summit provided valuable insights into innovative approaches, the utilisation of technology, and the crucial role of community engagement. Posing the question, "Has the time come for the fight against food waste to move beyond a "movement" where the scale of efforts matches the potential of opportunities its resolution brings?" Thank you to the University of Otago and the Aotearoa Food Rescue Alliance (AFRA) for supporting my attendance. You can read a great summary of the summit on the ReFED blog - [here](#).



The St. Louis Arch (left). From left to right: Francesca Goodman-Smith, FWI international representative; Millie Porter, Countdown resource recovery and food waste reduction manager; Grace Clare (right).

UPCOMING EVENTS



New Zealand International Science Festival (NZISF) | 30th June-9th July

We are hosting three events in collaboration with the NZISF. Head to the official NZISF website for more event information. Link [here](#).

- University of Otago Science Expo | 1st and 2nd July
- Tackling Food Waste Together: Actions and Innovations | 4th July
- Upcycled Food Work Shop | 7th July

NZIFST Annual Conference 2023: Food in a Changing World | 3-5th July

Join us for this year's NZIFST conference at the University of Otago in Ōtepoti, Dunedin. Registration is now open. Click [here](#) to register.



**FOOD IN A CHANGING WORLD
NZIFST CONFERENCE**
3rd-5th July 2023, University of Otago, Ōtepoti | Dunedin

RESEARCH OPPORTUNITY

SPONSOR A FOOD WASTE INNOVATION SUMMER STUDENT



CALL FOR SUMMER STUDENTS

We are currently seeking students to complete a food waste-related summer research project, as well as industry sponsors. You must be an undergrad or honours student, able to complete a 6-10 week project over the summer period. Sponsoring a summer student costs between \$3,000 to \$6,000. If you're interested, please do not hesitate to reach out.

Please email us to inquire.

NEW RESOURCES

O'Connor, J., Skeaff, S., Bremer, P., Lucci, G., & Miroso, M. (2023). A critical review of on-farm food loss and waste: Future research and policy recommendations. *Renewable Agriculture and Food Systems*, 38, E24. Resource available [here](#).

Clare, G., Diprose, G., Lee, L., Bremer, P., Skeaff, S., & Miroso, M. (2023). Measuring the impact of food rescue: A social return on investment analysis. *Food Policy*, 117, 102454. Resource available [here](#).

Miroso, M. (2023). He taonga te kai – an Aotearoa where food is valued not wasted. *New Zealand Economic Papers*, 1-6. Resource available [here](#).

Miroso, M., Bremer, P. (2023). Understanding New Foods: Upcycling. In: Serventi, L. (eds) *Sustainable Food Innovation*. Sustainable Development Goals Series. Springer, Cham. Resource available [here](#).

Petersen, G & Croad, T (2022). Onion loss and waste streams in Aotearoa. Find the resource [here](#).