EMERGING RISK IDENTIFICATION SYSTEM
Enhancing Food Safety in New Zealand

Monthly Brief

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E/S/R Science for Communities

New Zealand FOOD SAFETY SCIENCE & RESEARCH CENTRE

New Zealand Food Safety
Haumaru Kai Aotearoa

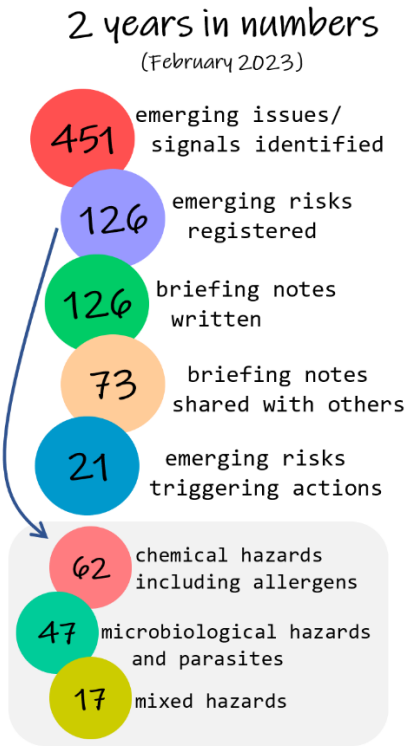
Welcome to Issue 17. The ERIS pilot project finishes in April 2023. We are securing support to continue this service permanently with an intent to transition into a long-term, core NZFSSRC service.

New Zealand Food Safety's Emerging Risk System

During 2022 a new group was formed within New Zealand Food Safety to identify and communicate emerging food safety risks of importance to the New Zealand Food Regulatory System. The Emerging Risk Systems Team identifies emerging food risks from a range of sources and agencies, utilising established drivers and indicators of change in context. A structured risk management framework is used to assess the identified emerging risk signals. The team seeks to understand the environmental drivers and provide insights to New Zealand Food Safety, underpinned by science and evidence-based analysis, on emerging and re-emerging food safety risks and hazards. They meet regularly with the ERIS team.

Kia whakatōmuri te haere whakamua. ERIS emerged from a two-year pilot project. As guided by this whakataukī (Māori proverb), the future of ERIS is unknowable but we look to the past and present to help us continue the journey.

The ERIS service can be reduced to a series of numbers. These indicate the scope of effort. However, it is difficult to quantify the value of communication and connection. Discussion of emerging risks at the quarterly Emerging Risk Action Forum meetings has introduced new perspectives and identified areas of joint interest across different food sectors. The sharing of briefing notes with NZFSSRC members has stimulated new conversations and raised awareness. Regular meetings with others involved in identifying emerging risks is mutually beneficial to all, since this expands our intelligence networks, provides a forum for debate and reduces duplication of effort. ERIS findings were presented at fourteen meetings and conferences, plus were used by others to prepare their own talks. Through all of this, the ERIS team developed capability in emerging risk assessment and working with data gaps and uncertainty.



L. Rameka writes about this whakataukī

Known hazard, increasing exposure? The potential for high concentrations of cadmium (Cd) in flaxseed products was a recently identified emerging risk, as the popularity of flaxseed increases based on health benefits. Flaxseed contains a high fibre content, Omega-3 fatty acid alpha-linolenic acid, phytoestrogens, vitamins and minerals, and has been shown to have digestive benefits and reduce cholesterol. Flaxseed has also been shown to accumulate Cd, some cultivars more than others, which may have consequences particularly for frequent consumers. Cd is a naturally occurring heavy metal in soils and Cd-accumulating crops like flaxseed can be used to remediate high-Cd soils. As a food, the nutritive benefits need to be balanced with food safety. Use of cultivars of flaxseed (and other crops) for food use that have lower Cd uptake could help reduce Cd dietary exposure.

The NZFSSRC member organisations funding ERIS are:

AsureQuality Kaitiaki Kai
Westland Milk Products Hokitika · New Zealand
PIANZ
Horticulture New Zealand Ahumāra Kai Aotearoa
mia Meat Industry Association
Oceania DAIRY
Zespri KIWIFRUIT
Fonterra Dairy for life
United Fresh New Zealand Incorporated

Featured emerging risks and issues

Allergenicity of chia seeds. Chia seeds, harvested from *Salvia* plants, are now widely available in New Zealand and increasingly used as a food ingredient. The seeds have a healthy nutritional profile. An anaphylactic reaction to chia seeds was first reported in 2015. A 2023 report describes seven patients in the USA who were hypersensitive to chia seeds, two whom developed anaphylaxis. Sensitivity to sesame appears to be a risk factor.

Potential chemical and microbiological hazards associated with 3D food printing. 3D printed foods are not yet widely available but the technology is advancing quickly. There is a range of potential applications depending on the goal, e.g. nutritionally customised foods, foods prepared in new creative forms, building foods from cultured cells. However, in addition to safely preparing and managing the extrusion mixes, producers need to control a range of contamination issues that might arise through the printing process. Examples include chemicals migrating from non-food safe printer parts (or parts that have degraded over time) and the build-up of microorganisms in difficult-to-clean parts of the machine.

Summary of activities, March 2023

New emerging risks and issues. Three emerging risks concerning food were identified during March:

- Allergenicity of chia seeds
- Grayananes in honey made with nectar from plants in the Ericaceae family
- Potential chemical and microbiological hazards associated with 3D food printing

These issues are important to New Zealand and briefing notes are being prepared. The Action Forum will decide if they want to undertake actions on these identified emerging risks. Briefing notes sourced from publicly available information can be provided by the coordinators to NZFSSRC members upon request.

Other assessed emerging issues. There were 31 emerging issues assessed during March that did not meet the requirement of being a foodborne emerging risk to human health. A list of these emerging issues is maintained for later review.

Some other observations. For interest, not currently in the ERIS Emerging Risks Register.

- The enzyme ribulose bisphosphate carboxylase/oxygenase (RuBisCO) is abundant in plant leaves because it is involved in photosynthesis. RuBisCo is also highly nutritious and a good alternative plant-based protein. No safety concerns have been identified. Commercial upscaling requires economically feasible, non-harmful extraction and purification methods to be developed. Such efforts are underway. — Link to a recent RuBisCO review
- An assessment of a food safety media campaign in Australia, aiming to improve consumers' food handling practices in the home, found that consumers' safe food handling knowledge improved over time but there was no improvement in food handling behaviours. — Link to campaign study report
- The UK Food Standards Agency has published a review of the potential hazards associated with the production of cultured animal cells, based on literature available in 2020. Important data gaps were identified that will need addressing to enable these foods to be fully assessed by this regulator. The FAO will release their report on the food safety aspects of cell-based foods early April. — Link to UKFSA report; Link to FAO cell-based food work
- The FAO have added three new reports to their Microbiological Risk Assessment Series, covering the prevention and control of microbiological hazards in sprouts, and the safety and quality of water used in the production and processing of fishery products or dairy products. — Link to FAO library

Further information. This brief has been prepared for the NZFSSRC's funding and partner organisations by Nicola King (ESR), with the support of Kate Thomas (NZFS), Abhi Gautam (ESR) and Seamus Watson (ESR).

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