

## **EMERGING RISK IDENTIFICATION SYSTEM (ERIS)**

### **Annual Report**

### **Year Two (March 2022–February 2023)**

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## Abbreviations

EFSA	European Food Safety Authority
ERIS	Emerging Risk Identification System
ESR	Institute of Environmental Science and Research
ERS	Emerging Risk Systems (NZFS)
FSANZ	Food Standards Australia New Zealand
MPI	Ministry for Primary Industries
NZFS	New Zealand Food Safety (MPI)
NZFSSRC	New Zealand Food Safety Science & Research Centre
VIBE	Vigilance and Intelligence Before food issues Emerge (FSANZ)

## Acknowledgements

The Coordinators would like to thank the NZFSSRC and the Action Forum for their active participation and support during Year Two. The Coordinators would also like to thank the Emerging Risk Identification Panel members for their participation, and acknowledge MBIE as a co-funder and MPI as an in-kind funder of this project.

## 1. INTRODUCTION

New Zealand's food industry is not just focussed on research that improves food safety now, but also research that will improve their ability to reduce or avoid future food safety risks. Horizon scanning is needed to identify these emerging food safety risks. While many individual food companies carry out some form of horizon scanning, only a few have systematic processes that link their scanning efforts to research planning. A review undertaken during 2017/18 identified the need for a systematic horizon scanning system that could identify emerging food safety risks, and then support the food industry to take action.<sup>1</sup>

A system for identifying emerging food safety risks has been established through the New Zealand Food Safety Science & Research Centre (NZFSSRC) with funding from nine food industry organisations and in-kind support from New Zealand Food Safety (NZFS). Underway since April 2021 and funded until April 2023, this Emerging Risk Identification System (ERIS) focusses on identifying food safety risks that may impact New Zealand in coming years.

The core purpose of ERIS is to support the food industry to prioritise their current and future food safety research.

The structure of ERIS has two pillars:

1. Gathering intelligence on emerging food safety issues and risks.
2. Supporting decision-making on future research.

This ensures that intelligence is turned into action.

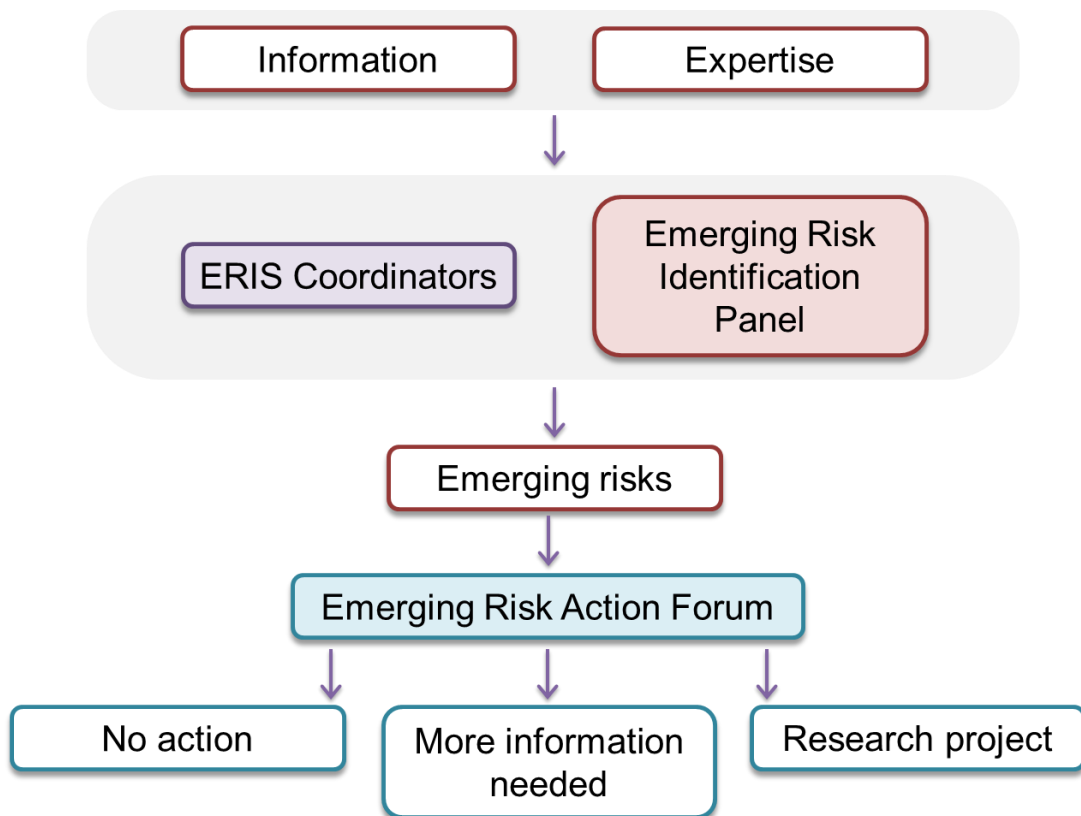
The 2017/18 review included an investigation into existing food safety horizon scanning systems in other countries and identified people as being the best source of intelligence on emerging food safety risks. ERIS has been designed as an expert centred system, with intelligence from people complemented by information gathered from other sources. Human networks are at the core.

The Emerging Risk Identification Panel is a key part of the intelligence gathering process (Figure 1). This Panel brings people together from different expertise areas, allowing them to combine their observations and ideas towards the common goal of identifying emerging food safety risks. The Emerging Risk Action Forum is the decision-making group, both for ERIS operational aspects and for determining what actions should be taken on emerging risks. Three coordinators, including one from NZFS, deliver ERIS and work with the Action Forum to establish processes and improve the system. The Coordinators scan a variety of sources to identify emerging risks and, when needed, gather additional information to support decision-making.

With the current project ending in April 2023, work is underway to continue the services provided through ERIS beyond this date.

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<sup>1</sup> King N, Martin-Neuninger R, Ho H and Brightwell G (2018) Dynamic scanning for emerging food safety risks and opportunities for the food industry: Learning from established horizon scanning systems and proposing a way forward for New Zealand. New Zealand Food Safety Science & Research Centre. [https://www.nzfssrc.org.nz/assets/Project-Reports/Dynamic-scanning-for-emerging-food-safety-risks-and-opportunities-for-the-food-industry\\_final-report.pdf](https://www.nzfssrc.org.nz/assets/Project-Reports/Dynamic-scanning-for-emerging-food-safety-risks-and-opportunities-for-the-food-industry_final-report.pdf)



**Figure 1. The core structure of ERIS**

Information from people and other sources is gathered by the ERIS Coordinators. The Emerging Risk Identification Panel draws from their own networks and observations to bring information into ERIS. Identified emerging risks are assessed by the Emerging Risk Action Forum, which is formed from the ERIS funders and is the primary decision-making group. Information on emerging risks is also made available to other NZFSSRC members as needed, and those in the Emerging Risk Identification Panel.

## 2. OPERATIONAL ACTIVITIES

Year One (2021/22) activities focussed on establishing systems and processes and transitioning to an operational phase. ERIS was fully operational during Year Two (2022/23).

### Meetings

There have been four meetings of the Emerging Risk Action Forum during Year Two. While also considering operational matters, participants at these meetings discussed identified emerging risks, deciding if further action was needed and what this action should be. The Action Forum used these meetings to consider 56 emerging risks identified during Year Two.

The second and third meetings of the Emerging Risk Identification Panel were held in May and November 2022. At their May meeting, participants identified 21 food safety issues then participated in focused discussions on three of these (consumer food insecurity, mis/disinformation campaigns and chronic conditions arising from long-term exposure to hazards in foods). At the November meeting, three experts were invited to present on emerging issues, which participants then discussed. The topics were cyanobacteria toxins in food, manufactured nanomaterials in food and emerging *Salmonella* serotypes in food. Meeting reports were published.<sup>2</sup>

### Information sources

The Coordinators continued to develop their list of information sources which are routinely scanned. All information sources are currently open-access, although in some cases access to details requires a subscription. In January 2023, the Coordinators undertook a full review of these information sources to ensure they were providing useful intelligence.

### Communications

General information on ERIS operations and identified emerging risks is circulated to NZFSSRC members and also made publicly available via a monthly briefing document.<sup>2</sup> Fifteen monthly briefs have been published to date.

The Action Forum also receives a monthly email alerting them to other signals/issues that did not meet the requirements of being an emerging risk associated with food. This email also serves to communicate any other information of importance to this group.

Briefing notes summarising each emerging risk are made available to NZFSSRC members upon request. In addition, briefing notes are now routinely provided to specific sector subgroups (taskforces) within the NZFSSRC (dairy, horticulture, seafood, *Campylobacter*). Briefing notes have also been shared with specific groups outside the NZFSSRC as part of establishing external connections.

In addition to the scheduled communications described above, the ERIS team have become a point-of-contact for NZFSSRC members and research organisations, and NZFS, for emerging risk information. In total, the project team has delivered fourteen presentations at meetings and conferences, describing the system and identified emerging risks, plus supported others preparing their own talks when the content includes information on emerging risks.

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<sup>2</sup> Available from from <https://www.nzfssrc.org.nz/our-work/eris>

## Establishing external connections

Formal links have been established with Food Standards Australia New Zealand's (FSANZ's) VIBE (Vigilance and Intelligence Before food issues Emerge) team, who assess the likelihood of an emerging food issue becoming a concern for FSANZ. During 2022, NZFS established an Emerging Risk Systems (ERS) group to identify and manage risks/issues which may fall within NZFS's remit as regulators. While the focus of the VIBE and ERS teams differ to the ERIS work, which is focused on the needs of the food industry and identifying scientific research priorities, interests overlap.

The ERIS, ERS and VIBE teams now meet regularly to share intelligence and provide updates on current activities, to minimise duplication of effort and maximise the benefits to stakeholders of the three systems.

The ERIS team also continues to be involved with the European Food Safety Authority's (EFSA's) Stakeholder Discussion Group on Emerging Risks. Through invitations to their meetings, the ERIS team has been able to exchange information and contribute to international discussions on emerging risks.

## Technical Response fund

As part of the overall ERIS project, a Technical Response Fund was established to enable the NZFSSRC to rapidly commission, undertake and provide the NZFSSRC industry members with technical advice on high priority food safety issues of concern. Criteria for the use of this fund and a process to access the fund has been established. To date, the fund has not been used.

## 3. ACTIONS ON EMERGING RISKS

There were 70 emerging risks identified and considered by the Action Forum during Year One (scanning period July 2021-February 2022). A further 56 emerging risks were identified and considered by the Action Forum during Year Two (March 2022-February 2023). Some emerging risks considered during Year One were re-considered during Year Two.

Across all 126 emerging risks considered by the Action Forum, the following decisions and actions were taken (Appendix):

- No action at this time (48 emerging risks).
- No action other than sharing the briefing note with a specific group (57 emerging risks).
- Additional information gathering required (20 emerging risks, of which briefing notes from 15 were also shared with specific groups).
- Additional information gathering then support to refine research concepts (1 emerging risk).

The need for communication material on four emerging risks, all considering nanoparticles, is under consideration.

## Appendix. Actions taken on emerging risks identified during Year One (1-70) and Year Two (71-126)

Emerging risk	Actions	Briefing note shared	
1	Shiga toxin-producing <i>Escherichia albertii</i> in food (particularly poultry)	No action	No
2	Perfluoroalkylated substances (PFAS) in foods	Information gathering (complete)	Yes
3	Invasive foodborne infections from <i>Streptococcus agalactiae</i> in fish	No action	Yes
4	<i>Datura</i> spp. in spinach	No action	Yes
5	<i>Listeria monocytogenes</i> serotype 4h	Information gathering (complete)	Yes
6	Chlorpyrifos-containing agrichemicals used for food crops	Information gathering (complete)	Yes
7	Allergenic potential of alternative proteins	No action	No
8	'Black food' coloured with high amounts of active carbon	No action	No
9	Adulterated beeswax	No action	No
10	Poultry as a vehicle of infection for the extraintestinal pathogenic <i>Escherichia coli</i> type ST131	No action	No
11	Microbial risks from collagen derived from marine invertebrates	No action	Yes
12	Health risks of coconut oil	Information gathering (complete)	No
13	Risk of tick-borne encephalitis from raw goat milk consumption (France)	No action	Yes
14	The Possibility for Chagas-disease due to climate change (Europe)	No action	No
15	3-monochloropropanediol and glycidyl esters from oils and fats	No action	Yes
16	Microplastics and nanoplastics in table salt	No action	No
17	Hazards in seaweed	Information gathering (complete)	Yes
18	Cannabidiol and cannabidiol products	No action	No
19	Bamboo cups leaching formaldehyde and melamine	No action	No
20	Ethylene oxide in foods	No action	No
21	Bongkrelic acid in fermented foods	No action	No
22	Functional nanomaterials in food packaging	Other action (underway)	No
23	Tick-borne alpha-gal induced red meat allergy	No action	No
24	Increasing cases of alveolar echinococcosis, caused by <i>Echinococcus multilocularis</i> , across Europe and North America	No action	No
25	Accumulation of $\beta$ -methylamino-L-alanine (BMAA) in seafood and the link to neurodegenerative disease	No action	Yes
26	New limits for chlorate in milk	Information gathering (complete), research concept (complete)	Yes
27	Microplastics and nanoplastics in food	No action	No
28	Brevetoxins in shellfish (Europe)	No action	Yes
29	Increased attention on <i>Toxoplasma gondii</i> in red meat	No action	No
30	<i>Cyclospora cayetanensis</i> on fresh produce	No action	Yes
31	Foodborne transmission of <i>Salmonella</i> Bovismorbificans	No action	Yes
32	Bee products as food ingredients	No action	No
33	Chemical hazards present in <i>Salicornia</i> (sea asparagus)	No action	Yes
34	<i>Candida krusei</i> and <i>Pichia kudriavzevii</i> . Same species with pathogenic potential	No action	No
35	Sodium benzoate affects the epigenome	No action	No
36	Spore-forming bacteria in insect-based foods	No action	No

37	Bovine Milk and Meat Factors as risk factors for cancer	No action	Yes
38	Foodborne transmission of <i>Acinetobacter</i> spp.	No action	No
39	Luciferase and luciferin in food	No action	No
40	Dietary allulose as a risk factor for <i>Klebsiella</i> infection	No action	No
41	<i>Pantoea dispersa</i> in dried foods	No action	No
42	The role of milk exosomes in chronic disease	No action	Yes
43	<i>Salmonella</i> in finfish	No action	Yes
44	Risks associated with homemade plant-based milks	No action	No
45	Nanoparticle delivery of agrichemicals	Information gathering (complete), other action (underway)	Yes
46	Tortilla consumption linked to aflatoxin exposure (Guatemala)	No action	No
47	Latent bovine tuberculosis in cattle	No action	Yes
48	Microbial safety of fruit waxes	Information gathering (complete)	Yes
49	Increase in <i>Anisakis</i> spp. abundance in fish	No action	Yes
50	Edible graphene on food	No action	No
51	The effect of phytoestrogens in soy-based infant formula on infant development	No action	Yes
52	Dietary exposure to opium alkaloids in poppy seeds can exceed acute reference dose	No action	No
53	Coffee adulteration and deliberate mislabelling	No action	No
54	Increasing detection of hepatitis E virus in foods	No action	Yes
55	Hepatitis A linked to dried fruit	No action	No
56	Polyaromatic hydrocarbons in cannabidiol oils	No action	No
57	Salmonellosis linked to onions	No action	Yes
58	Fresh produce as a trigger for pollen food allergy syndrome	No action	Yes
59	Palmitic acid promotes cancer metastasis	No action	Yes
60	Lower limit for eugenol in fin fish (Japan)	No action	Yes
61	Functional nanomaterials as food ingredients	Information gathering (complete), other action (underway)	No
62	Increasing recalls from hazards in home delivery meal kits	No action	No
63	Hypoglycin A from sycamore in milk	No action	Yes
64	Titanium dioxide (E171) no longer considered safe when used as a food additive	No action	No
65	Plasticisers migrating from disposable gloves to food	No action	Yes
66	Foodborne infections from <i>Arcobacter</i> spp.	No action	No
67	<i>Proteus mirabilis</i> carriage by meat and poultry	No action	Yes
68	Increasing incidence of <i>Salmonella</i> Give among cattle and potential for foodborne transmission (NZ)	Information gathering (complete)	Yes
69	Pheophorbide in seaweed	No action	Yes
70	Freshwater cyanobacteria toxins in irrigation water	Information gathering (complete)	No
71	Foodborne spread of <i>Staphylococcus saprophyticus</i>	No action	Yes
72	<i>Alternaria</i> toxins in tomato products	No action	Yes
73	Allergens in alternative food packaging	Information gathering (complete)	Yes
74	<i>Salmonella</i> in frozen vegetables	No action	Yes
75	<i>Moringa oleifera</i> in foods	No action	Yes
76	Bisphenol S in food contact materials	Information gathering (underway)	Yes



77	<i>Staphylococcus argenteus</i> in poultry	No action	Yes
78	Cyanogenic glycosides in elderberries	No action	Yes
79	Meat as a dietary contributor to amyloidosis	No action	No
80	Allergenicity of pectin as a food ingredient	No action	Yes
81	Increasing inclusion of probiotics, prebiotics, paraprobiotics and postbiotics in foods	No action	No
82	Mycotoxins in fish from plant-based feed	No action	Yes
83	Adaptogens in food, beverages and animal feed	No action	No
84	Precautionary labelling for allergens in food	Information gathering (complete)	Yes
85	Rat Hepatitis E Virus (HEV) causing hepatitis in people	No action	Yes
86	Tolerance of bacteria to substandard alcohol-based sanitisers	No action	Yes
87	Potential radiation contamination of cereals from Ukraine	No action	No
88	Halogenated polycyclic aromatic hydrocarbons in high salt seafood snacks	No action	Yes
89	Animal reservoirs of <i>Streptococcus gallolyticus</i> subsp. <i>gallolyticus</i>	No action	Yes
90	Engineered nanomaterials in the environment	Information gathering (complete), other action (underway)	No
91	Increase in the proportion of dried beans and rice samples with pesticide residues exceeding MRLs (EU)	No action	No
92	Fungicide residues in food and antifungal resistance among <i>Candida auris</i>	No action	Yes
93	Hazards associated with jellyfish as a food	No action	Yes
94	Mycotoxins in red wine	No action	No
95	<i>Bacillus thuringiensis</i> and foodborne disease	No action	No
96	Mineral oil hydrocarbons (MOAH) in food: Harmonised limits of quantification	Information gathering (underway)	Yes
97	Human bocavirus in shellfish	No action	Yes
98	<i>Clostridioides (Clostridium) difficile</i> on potatoes	No action	Yes
99	Foodborne transmission of <i>Klebsiella</i> species	No action	Yes
100	Foodborne transmission of <i>Streptococcus equi</i> subspecies <i>zooepidemicus</i>	No action	Yes
101	Chemical migration from substandard silicone moulds	No action	No
102	Emerging natural toxins in seafood	No action	Yes
103	Cadmium in emerging animal fodders	No action	Yes
104	Potential for adulteration of sunflower oil	No action	No
105	Dietary exposure to organophosphate esters	Information gathering (complete)	No
106	Colourants from butterfly pea flowers	No action	No
107	Chlorinated paraffins in food	No action	No
108	Heat tolerant Enterobacteriaceae	Information gathering (underway)	Yes
109	Foodborne transmission of <i>Clostridium difficile</i>	No action	Yes
110	Mycotoxins in pseudocereals	Information gathering (complete)	Yes
111	Mycotoxin and alkaloid contamination in plant-based meat alternatives	No action	Yes
112	Allergens in powdered silk worm ( <i>Bombyx mori</i> )	No action	No
113	Lead in freeze-dried berries	No action	Yes
114	Potential foodborne transmission of extraintestinal pathogenic <i>Escherichia coli</i> (ExPEC)	No action	Yes
115	<i>Helicobacter pylori</i> in poultry	No action	Yes
116	Food safety of tara flour	No action	No

117	Fluoride in soy-based beverages	No action	Yes
118	<i>Laribacter hongkongensis</i> in freshwater foods	No action	Yes
119	New zoonotic henipavirus ( <i>Langya henipavirus</i> )	No action	No
120	Furan, methylfurans and alkylfurans in foods	No action	Yes
121	Pathogenic <i>E. coli</i> in falafel	No action	Yes
122	Fraudulent use of additives in fresh tuna	No action	Yes
123	Spore-forming bacteria in plant-based proteins	No action	Yes
124	<i>Citrobacter</i> spp. in foods	No action	Yes
125	Hypertransmissible, zoonotic <i>Cryptosporidium parvum</i>	No action	Yes
126	Potential for novel food processing to affect packaging integrity	No action	No