Údarás Sábháilteachta Bia na hÉireann
Food Safety Authority of Ireland

2026

Research Needs 2026

Project priorities

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Project priorities 2026

The Food Safety Authority of Ireland (FSAI) has a mandate to enforce food law and protect consumer health in relation to food marketed and produced in Ireland. Its brief covers food safety, hygiene, and aspects of nutrition. Food safety research is essential to address any gaps in food safety knowledge, to support improvement of and compliance with food safety regulations, and to identify emerging issues and threats to the food system in Ireland.

The FSAI is not a research funding body. Therefore, it is essential that it communicates areas of priority food safety research to state bodies that fund research, and to scientists in research institutes who are applying for funding. These areas can be incorporated into research calls by funding bodies, or they can be the subject of researcher-led funding proposals submitted to research funding bodies.

This document outlines priority research areas that would advance the risk assessment and risk management work of the FSAI and support the protection of public health. They are listed under broad topic headings, and they include suggestions for major research projects as well as smaller desk top research studies. Relevant work in the field of study that has been brought to the FSAI's attention is listed to help researchers, but it is not a comprehensive list of relevant studies and researchers are advised to research the state-of-the-art in any field of study.

Research funding bodies and/or researchers are invited to cite this report as supporting documentation for their calls or proposals.

The FSAI would be happy to discuss the detail of proposed research topics with researchers who wish to make applications to research funding bodies in these areas of interest. The FSAI would also be happy to contribute research ideas to research funding organisations making research calls.

Where national projects are under way or are planned in these research areas and are not listed, the FSAI would be grateful if researchers and/or research funding bodies could notify the Authority via the FSAI Advice Line (info@fsai.ie).

Project List

Exposure assessment

Research area	Research need	Relevant Irish research projects initiated 2011 onwards that the FSAI is aware of
Estimation of foodborne illness in Ireland	Pathogenic microorganisms cause gastrointestinal disease and a range of sequelae impacting the health of people in Ireland. Surveillance data on notifiable infectious diseases in people in Ireland are collected and collated by the Health Protection Surveillance Centre (HPSC) in the Health Service Executive (HSE) and include infections caused by pathogens associated with foodborne transmission. However, these surveillance data describe only reported cases and therefore do not reflect the true extent of illness in the community. Substantial underestimation can occur because individuals often self-manage symptoms and do not seek medical care, leading to under ascertainment of cases. Furthermore, even when individuals access healthcare, some infections may not be identified (e.g. not tested for) leading to underreporting of cases. Although the safety of food in Ireland is high, substantial data gaps exist regarding the true total number of illnesses caused by different	None notified.

Research area	Research need	Relevant Irish research projects initiated 2011 onwards that the FSAI is aware of
	foodborne pathogens. Such data would support resource prioritisation for food safety interventions, via a One Health approach. Research is needed to estimate the true number of foodborne illnesses in Ireland. Epidemiological methods such as prospective cohort studies, population-based surveys, and capture-recapture analysis could provide additional measurements of disease incidence. Estimation of foodborne attribution can be achieved through source attribution studies using whole genome sequencing, exposure modelling, or case-control designs to distinguish foodborne transmission from other routes. Well-structured and internationally recognised methods are necessary in this field to enable scientifically robust estimates. Researchers should be cognisant of similar studies elsewhere: • USA: Scallan Walters *et al*, 2025, *Emerging infectious disease vol 31* (4) • United Kingdom: *IID3: The third study of Infectious Intestinal Disease in the UK* Note: Collaboration with the HPSC in the HSE would be essential throughout the research process, to ensure alignment with the Irish public health systems.	

Research area	Research need	Relevant Irish research projects initiated 2011 onwards that the FSAI is aware of
Food consumption data for the Irish population	Food safety risk assessment requires accurate and comprehensive data on the food consumption habits of the Irish population including types of food, quantities consumed, and frequency of consumption for all age groups. These data are also essential for nutritional analysis including identification of nutrient deficiencies, development of dietary advice, and programmes on food reformulation. Ireland has developed excellent food consumption datasets for all age groups using the food diary approach, which generates data that are both fit for risk assessment and dietary analysis. However, as data become older at a time when consumption habits change quickly, up-to-date data are continually required on a rolling programme basis. *The National Children's Food Survey II* (2017–2018) is the oldest dataset not currently funded for update and should be the next study prioritised for updating. Biomonitoring samples, for example urine, are also useful for later dietary analysis and analysis of chemical exposure. It would be desirable to include this aspect in any research programme, such that biomonitoring samples are taken from participants during the survey and stored along with their metadata for future analysis. The FSAI has	**1. *National PreSchool Nutrition Survey II*** **Lead:** Dr Breige McNulty, University College Dublin (UCD). **Funded by:** Food for Health Ireland research initiative. Supported by the Department of Agriculture, Food and Marine (DAFM). **Start year:** 2023. **Report available:** Project under way. **2. *National Adult Nutrition Survey II (NANS II)*** **Lead:** Dr Janette Walton, Cork Institute of Technology (Technical University Munster) **Funded by:** DAFM Food Institutional Research Measure (FIRM) 2019R445. **Start year:** 2019. **Report available:** here. **3. *National Teens' Food Survey II (NTFS II)*** **Lead:** Dr Breige McNulty, UCD

Research area	Research need	Relevant Irish research projects initiated 2011 onwards that the FSAI is aware of
	published a list of useful biomarkers in 2025 as part of its work under the Scientific Committee.	**Funded by:** DAFM, FIRM 17F231. **Start year:** 2017. **Report available:** here. **4. *National Children's Food Survey II (NCFS II)*** **Lead:** Prof. Albert Flynn, University College Cork (UCC) **Funded by:** DAFM, FIRM15F674. **Start year:** 2015. **Report available:** *here*. ***5. The Irish Longitudinal Ageing Study (TILDA) Nutritional Biomarker Database Enhancement Initiative (BIO-TILDA)*** **Lead:** Dr Anne Molloy, Trinity College Dublin (TCD) **Funded by:** DAFM, FIRM 13F492. **Start year:** 2013.

Research area	Research need	Relevant Irish research projects initiated 2011 onwards that the FSAI is aware of
		Report available: here. **6.** ***National Nutrition Databases for Public Health and New Product Development (Nutridata)*** **Lead:** Prof. Dolores O'Riordan, UCD **Funded by:** DAFM, FIRM13F542. **Start year:** 2013. **Report available:** here.
Generate specific food consumption and analytical data on food supplements	Irish legislation defines food supplements as: > Foodstuffs the purpose of which is to supplement the normal diet and which are concentrated sources of nutrients or other substances with a nutritional or physiological effect, alone or in combination, marketed in dose form, namely forms such as capsules, pastilles, tablets, pills and other similar forms, sachets of powder, ampoules of liquids, drop dispensing bottles, and other similar forms of liquids and powders designed to be taken in measured small unit quantities. The food supplement market is global with products easily available on the Internet from jurisdictions outside the European Union (EU), where	None notified.

Research area	Research need	Relevant Irish research projects initiated 2011 onwards that the FSAI is aware of
	different rules are in place. Sometimes supplements can contain high levels of nutrients above physiological need, for example protein, vitamins, and minerals. Other supplements may contain high levels of caffeine, green tea extracts and botanicals. Supplements may also contain hazardous chemical constituents such as 2,4-Dinitrophenol (DNP) and contaminants (e.g. heavy metals), despite the work of Authorities to control the supplement market. The value and demand for food supplements can also act as an incentive for fraudulent activity by illegitimate operators, including the substitution of ingredients and the addition of illicit active substances. Food safety risk assessment requires good data on consumption and composition of these supplements. Specifically, data are required on: • The frequency of consumption and intake of supplements in those aged 9–85 years • Official/self-reported harmful effects associated with these supplements • Composition, particularly the possible presence of illicit substances • Toxicity of substances that exert a physiological effect which are included in food supplements.	

Research area	Research need	Relevant Irish research projects initiated 2011 onwards that the FSAI is aware of
	Note: Nutrient declarations on labels of food supplements are based on average values and there are acceptable tolerances above and below the labelled level in Europe. Therefore, tested nutrient levels in supplements may be within these tolerances without breach of legislation.	
Use and consumption patterns of seaweed and halophytes in Ireland	Seaweed is a relatively underexplored source of human nutrition in Ireland. Market research shows that product development has continued to diversify, with cooking, nutrition and food innovation constantly expanding. In 2020, the FSAI Scientific Committee published a report titled *Safety considerations of seaweed and seaweed-derived foods available on the Irish market*. The report noted several gaps in information that would be necessary to conduct a comprehensive risk assessment. **Research needs:** • Robust quantitative data are needed on the direct consumption of seaweed, and consumption of seaweed as an ingredient in other foods (not including additives, e.g. thickeners) for all age groups, ranging from those aged 12 months upwards. • A representative survey of seaweed preparation and consumption practices - including how seaweed is sourced (foraged, farmers' markets, health food shops, online or retail) - should be undertaken	None notified.

Research area	Research need	Relevant Irish research projects initiated 2011 onwards that the FSAI is aware of
	alongside a scientific assessment of how different processing methods influence levels of harmful chemicals such as heavy metals and iodine. • Systematic monitoring of cadmium, inorganic arsenic, lead, nickel and iodine in algae (including microalgae and halophytes) and algae-containing foods. This work should also gather evidence on measures that reduce contaminant concentrations, for example, washing, soaking in cold or warm clean water or seawater, or blanching.	

Emerging risks and threats

Research area	Research need	Relevant Irish research projects initiated 2011 onwards that the FSAI is aware of
Myxozoa in fish	The 2024 European Food Safety Authority (EFSA) opinion on parasites in fishery products acknowledges the potential issue of Cnidaria (Myxozoa) including the myxoposridian genus *Kudoa*. Impact in terms of post-mortem degradation of muscle tissue is a concern in harvesting from infested wild or farmed finfish. The FSAI is aware of anecdotal evidence of increasing prevalence within and across finfish species,	None notified.

Research area	Research need	Relevant Irish research projects initiated 2011 onwards that the FSAI is aware of
	based on increasing incidence of visible post-mortem tissue degradation. Public health connotations including but not limited to allergenicity are not well understood, although mitigated significantly by visible tissue changes resulting in exclusion of the fish form the food chain as 'obviously contaminated'. The FSAI is interested to learn of prevalence of Myxozoa in different species and production systems within Ireland, and the extent to which macroscopically visible post-mortem muscle autolysis correlates with infestation. An understanding of the risk factors affecting prevalence, for example production method, evisceration, catch location, and water temperature, would also be of interest. Investigation of potential food safety considerations such as allergenicity, and potential risk management strategies for control of any risk to human health are essential. Relevant reports for reference: • EFSA, 2024 (1): *Re-evaluation of certain aspects of the EFSA Scientific Opinion of April 2010 on risk assessment of parasites in fishery products, based on new scientific data. Part 1: ToRs1–3.*	

Research area	Research need	Relevant Irish research projects initiated 2011 onwards that the FSAI is aware of
	• EFSA, 2024 (2): *Re-evaluation of certain aspects of the EFSA Scientific Opinion of April 2010 on risk assessment of parasites in fishery products, based on new scientific data. Part 2.*	
Vibrio species in food of aquatic animal origin	EU legislation does not prescribe any limit for Vibrio species as a microbiological criterion for any foods, nor any explicit obligation to assess the presence nor concentration of this organism on food. A 2024 EFSA opinion suggested an overall prevalence for Vibrio species on food of marine aquatic animal origin in the order of 20%. It noted increasing risk with increasing temperature and salinity changes arising from climate change. A further 2024 EFSA technical specification recommended Vibrio species among bacterial indicators of the prevalence of antimicrobial resistance (AMR) in the aquaculture production environment. However, sampling plans to derive value from investigation of Vibrio AMR require data on the underlying prevalence of the organism. Previous work (Turner *et al.*, 2015) identified the potential of Vibrio species in the biotransformation and hence prevalence of emerging biotoxins in northern EU waters. Overall EU sufficiency for seafood is in the order of 40%, with substantial quantities of import from areas of the world where Vibrio species are already endemic and consequent potential to influence Vibrio species risks in seafood consumed in the EU.	**1. *ToxVib - Genomics to Investigate Risks of Toxin-Producing Vibrio in Irish Shellfish*** **Lead:** Dr Aoife Boyd, University of Galway. **Funded by:** DAFM, FIRM 2019R531. **Start year:** 2019. **Report not available.**

Research area	Research need	Relevant Irish research projects initiated 2011 onwards that the FSAI is aware of
	A report on emerging extraintestinal Vibro infections in Ireland is available (Hooban *et al.,* 2026). The FSAI sees merit in research projects which deploy representative sampling techniques to characterise the prevalence, concentration, and pathogenicity of Vibrio species present in: • Irish mollusc aquaculture • Irish finfish aquaculture • Wild fisheries in Irish Exclusive Fishery Zones (EFZs) including molluscs, crustaceans and finfish • Seafood imports entering the EU in Irish Border Control Posts (BCPs). Relevant report: EFSA, 2024: *Public health aspects of Vibrio spp. related to the consumption of seafood in the EU*	

Food science and technology

Research area	Research need	Relevant Irish research projects initiated 2011 onwards that the FSAI is aware of
Safe use of biosolids on agricultural land used for food production	In 2008, the FSAI Scientific Committee published a comprehensive report on the 'food safety implications of land spreading of organic agricultural waste and organic municipal/industrial waste on land in Ireland'. Research in progress and published (see projects 1 and 2 listed) has/is addressing some of the safety aspects associated with spreading organic agricultural (OA) material, and organic municipal industrial (OMI) materials on land used for agriculture. Further research is needed to expand on some of this work in respect of biosolids (solid treated waste from wastewater treatment plants comprising human faecal waste and municipal feedstocks), sewage sludge (solid/semisolid waste that is treated but not to an extent that reduces the biological or chemical hazards), and animal faecal waste. In particular, the FSAI would welcome research that provides data on the: • Possible bioaccumulation of chemical hazards (heavy metals, persistent organic pollutants and microplastics) in different soils due to use of biosolids and/or sewage sludge, and the uptake of these chemicals in; different pasture plants; tillage crops and fresh produce grown in these soils; and animals consuming pasture,	**1. *Assuring the Chemical and Microbial Safety of Organic Waste Spread on Land in Ireland*** **Lead**: Declan Bolton, Teagasc. **Funded by:** DAFM, FIRM 2021R453. **Start year:** 2021. **Report not available.** **2. *Health and Water Quality Impacts Arising from Land Spreading of Biosolids*** **Lead:** Mark Healy. **Funded by:** Environmental Protection Agency (EPA). **Start year:** 2014. **Report available:** here. **3. *AD-Policy: The comparative public and animal health risks associated with spreading anaerobic digestate, animal manure and slurry on land: science, policy and practice*** **Lead**: Declan Bolton, Teagasc.

Research area	Research need	Relevant Irish research projects initiated 2011 onwards that the FSAI is aware of
	crops or forage grown on those soils (Note: Project 2 looked at uptake of some chemical hazards in rye grass). This includes assessing these pollutants as vectors for pathogens and their role in facilitating hazard transport to groundwater. Strategies to manage such risk should also be considered. • Potential introduction, or transmission amongst animal cohorts, of biological hazards through land spreading of organic material including animal or human waste. Practical effective strategies to manage such hazards should also be considered. • Detailed inventory of biosolids produced and used in Ireland, including the amount used on agricultural land and what crops are grown afterwards on such land. • The effect of different treatments on hazards in animal manure before land spreading including ambient anaerobic storage (on-farm slurry storage) and passive manure composting. • Post-spread degradation or multiplication characteristics of biological and chemical hazards following different land spreading strategies such as surface-spraying, shallow injection, and ploughing-in. Practical effective strategies to optimise risk management should also be considered.	**Funded by:** DAFM, FIRM 14SF847. **Start year:** 2014. **Report available:** here.
The chemical safety of plant-based protein sources	Globally, there is a general desire to move to a more sustainable food system. Among other actions, this requires us to embrace a more	**1. *Duckweed as a Novel, Sustainable Source of Protein for Ireland***

Research area	Research need	Relevant Irish research projects initiated 2011 onwards that the FSAI is aware of
	sustainable diet. Some research suggests that sustainable diets may require people to consume less meat. As such, there has been an increase in the development and availability of plant-based protein sources. Research is needed to: • Establish the allergenicity, if any, of plant-based protein alternatives. • Study the chemical hazards and mycotoxins associated with plant-based protein sources. • Examine the presence, if any, of antinutrients in plant-based protein alternatives and their effect on nutrient intake from the final food. • Develop approaches to mitigate any risks to food safety that have been identified. Note: there is some Irish research in this area, but it is unclear if food safety is an aspect of the research.	**Lead:** Marcel Jansen, UCC. **Funded by:** DAFM, FIRM 2021R487. **Start year:** 2021. **Report not available.** Note: It is unclear if the food safety angle of this work has been taken account of in the study. **2. *Protein-I: Shared Island Sustainable Healthy Nutrition*** **Lead:** Prof. Lorraine Brennan, UCD. **Funded by:** DAFM, FIRM 2021R546. **Start year:** 2021. **Report not available.** Note: It is unclear if the food safety angle of this work has been taken account of in the study.
Explore the use of an AI and machine learning based automated online market surveillance system for	The rapid growth of online food retailing has introduced new challenges for food safety authorities in ensuring compliance with food safety legislation. Unlike traditional food businesses, online marketplaces operate in a dynamic and decentralised manner, making	None notified.

Research area	Research need	Relevant Irish research projects initiated 2011 onwards that the FSAI is aware of
identifying non-compliant food products in the Irish market	it difficult for regulators to effectively monitor non-compliant food products. Current market surveillance approaches rely on manual checks, consumer complaints, and limited data analysis, which are not enough to address the scale of the issue. The use of Artificial Intelligence (AI) and Machine Learning (ML) offers an opportunity to modernise and enhance market surveillance by automating the identification of non-compliant food products sold online. AI-driven tools can crawl, scrape, analyse, and classify online listings to detect potential food safety violations, such as mislabelling, unauthorised health claims, the presence of banned substances, and fraudulent food products. The primary objective of a research project in this field is to explore the potential opportunity for an AI and ML system that will automate the detection of non-compliant food products sold online in Ireland, with potential to integrate the insights into the risk-based official control framework.	
Identifying honey authenticity analytical methods with a view to	Honey, a natural product with increasing vulnerability to adulteration, poses significant challenges to consumer trust and market integrity.	None notified.

Research area	Research need	Relevant Irish research projects initiated 2011 onwards that the FSAI is aware of

harmonisation for official control purposes	While the EU Honey Directive mandates the analysis of hydroxymethylfurfural (HMF) and diastase activity, these parameters alone are not enough to comprehensively detect fraudulent practices. To strengthen official control capabilities, there is a need to explore and validate additional analytical methods that can better determine honey authenticity.
	
	Research is needed to evaluate and validate a range of potential techniques designed to detect fraudulent practices, including:
	
	• Antioxidant activity (DPPH and FRAP)
	• Flavour components
	• Hydrogen peroxide and volatile fraction
	  • Amino acid profiling (proline, tyrosine)
	  • The use of protein content as a marker for pollen removal
	• Other enzymes: glucose oxidase, catalase, and phosphatase
	• Foreign enzymes: beta/gamma amylase, heat-stable alpha-amylase, beta-fructofuranosidase (to detect exogenous syrups)
	  • Maillard reaction of proteins
	  • Maillard reaction by-products: furosine, furan, and acrylamide
	• Physico-chemical parameters: acidity, total soluble solids, colour, electric conductivity, saccharides
	  • Enzymatic and microbial activity testing	

Research area	Research need	Relevant Irish research projects initiated 2011 onwards that the FSAI is aware of
	• Standardising invertase thresholds across different botanical origins • Carbon isotope ratio • Validation of mesh sizes (150-200 µm) to protect the natural pollen spectrum and density. Principal Component Analysis (PCA) and other multivariate data analysis approaches to distinguish honey samples with varying degrees of processing or botanical origins would be useful. By systematically analysing the effectiveness of these methods, this research should provide a scientific basis for recommending specific analytical methods for optimal official controls of honey authenticity, ensuring consumer protection and market integrity across the EU. Researchers should note the work of the FSAI Scientific Committee regarding validation of analytical methods fit for enforcement purposes and approach the development of such methods accordingly.	

Biological safety

Research area	Research need	Relevant Irish research projects initiated 2011 onwards that the FSAI is aware of
Reduction of antimicrobial resistance as a foodborne hazard	The development of AMR in bacteria remains one of the biggest threats to human health in the 21st century. Ireland has embarked on a national action plan on AMR, which is designed to prevent, monitor, and combat AMR across the human health, agricultural and environmental sectors. Ireland's third *One Health National Action Plan on Antimicrobial Resistance 2026-2030* (iNAP3) was published jointly by the Departments of Health (DOH) and DAFM in November 2025. Research continues to be one of the six strategic objectives. In 2025 iNAP3's predecessor, *iNAP2*, commissioned and published a gap analysis of research needs in relation to AMR in an Irish context. The FSAI would be interested in research such as: • Developing sampling plans and analytical targets, including index organisms, which would enable meaningful characterisation of the prevalence of AMR in food animals and on food. • Developing a bioinformatic approach to understanding the attribution of antimicrobial use in food production and subsequent foodborne transmission, to the extent of AMR. • Establishing the extent of association, including potential time lag, between antimicrobial usage in animals and prevalence of	A list of research and research gaps can be found in this report: **1. Yukta Mahashabde *et al.*** *Antimicrobial Prescribing Guidelines for Veterinary Practitioners Antimicrobial Prescribing Guidelines for Veterinary Practitioners Gap Analysis of Research needs in relation to Antimicrobial Resistance in an Irish Context*

Research area	Research need	Relevant Irish research projects initiated 2011 onwards that the FSAI is aware of
	antimicrobial resistant bacteria in foods derived from those animals. This work should aim to validate the cause/effect hypothesis which would better justify ongoing usage reduction initiatives. In general, this would require active development of surveillance plans with representative sampling initiatives, to allow time series comparisons. • Assessing the extent of coccidiostat usage and its contribution to the development of AMR. • Assessing both risks and benefits for foodborne AMR from prohibition of zinc oxide as a feed additive in pigs. • Assessing inter-animal crop AMR transfer through e.g. withdrawal period milk and manure recycling and recommend risk management strategies. • Assessing the consumer/market benefits of a labelling scheme to enable purchase from farms/systems with lower antimicrobial usage.	
'One Health' mitigation measures to reduce the risk of Shiga Toxin-producing *Escherichia coli* infection in humans in Ireland	Ireland has one of the highest reported rates of shiga toxin-producing *E. coli* (STEC) illness in people in Europe. Multiple serotypes are involved, in addition to O157 and O26, which are the most common. While the high reported rate is in part due to the active surveillance of all STEC infections in Ireland, infection from environmental sources (for	**1. *Detection and Risk Management of Verotoxigenic E. coli in the Water Environment (DERIVE)*** **Lead:** Dr Liam Burke, University of Galway.

Research area	Research need	Relevant Irish research projects initiated 2011 onwards that the FSAI is aware of
	example private well water and on-farm exposure) is a major contributor. Food appears to play a lesser role in human STEC infection, but environmental contamination of food produce, and food animals or their waste material (for example, cattle and sheep or pigs), can still cause outbreaks. Control of STEC requires a 'One Health' approach that involves mitigations with an environmental, animal production, and human health dimension. Research is needed to: • Enhance existing surveillance studies to identify risk factors for higher prevalence of STEC in fresh produce, food animals, water sources, and other environmental sources. • Identify animal production practices that mitigate risk of faecal shedding of animals, which may result in contamination of food directly or through environmental sources (e.g. pre-harvest dietary change or husbandry interventions, host genetic markers of super shedding likelihood). • Investigate the role of pig carriage and shedding of STEC strains of potential significance to human health.	**Funded by:** EPA. **Start year**: 2022. **Report available: here.** **2. *VTEC One for Health Surveillance of Verocytotoxigenic E. coli in Ireland: A One Health Approach*** **Lead:** Dr Geraldine Duffy, Teagasc. **Funded by:** DAFM, FIRM 15F629. **Start year:** 2015. **Report available: here.** **3. *DESIGN - Detection of Environmental Sources of Infectious Disease in Groundwater Networks*** **Lead:** Dr Jean O'Dwyer, UCC. **Funded by:** EPA. **Start year:** 2018. **Report available:** here.

Research area	Research need	Relevant Irish research projects initiated 2011 onwards that the FSAI is aware of
	• Investigate the effectiveness of protocols to manage STEC risk in the production of raw milk or raw milk dairy products, including animal husbandry, milking hygiene and post-harvest risk mitigation.	**4. *STEP_WISE: SpatioTemporal Epidemiology of Primary Waterborne Infections - cryptoSporidium and VTEC*** **Lead:** Dr Paul Hynds, Technological University Dublin (TUD). **Funded by:** EPA. **Start year:** 2018. **Report available:** here **5. *An investigation of Verocytotoxigenic E. coli super-shedding in beef and dairy cattle and the factors underpinning human virulence potential and strain emergence as a result of vt phage transduction "VTEC-SUPVIRT"*** **Lead:** Dr Geraldine Duffy, Teagasc. **Funded by:** DAFM, FIRM. 11F051 **Start year:** 2012. **Report available:** here.

Research area	Research need	Relevant Irish research projects initiated 2011 onwards that the FSAI is aware of
Maximising *Campylobacter* risk management within chicken slaughter	*Campylobacter* remains the most common cause of bacterial gastroenteritis in people in Ireland. While the poultry sector has made considerable progress in reducing the prevalence and the concentration in chickens and chicken meat, these reductions have plateaued. In 2011, the FSAI Scientific Committee made various recommendations to manage the *Campylobacter* risk from farm to fork. Since 2018, legislation requires slaughterhouse operators to apply a quantitative *Campylobacter* microbiological criterion in assessing their process hygiene and to take corrective action to resolve non-compliance. While the FSAI has identified thinning as a particular risk factor, there is a real commercial challenge in developing production systems that avoid this entirely Protocols to manage its risks as effectively as possible are needed. Optimisation of slaughter practices to minimise *Campylobacter* numbers on chicken meat can contribute to overall risk management. Investigations of practical effectiveness of *Campylobacter* interventions in an Irish context should facilitate progress towards incorporation of control points into the food safety management systems of approved commercial establishments, including slaughterhouses. The Clean Broilers project examined the impact of key processing stages and flock variables on the prevalence	**1. *Prevalence and levels of Campylobacter in broiler chicken batches and carcasses in Ireland in 2017-2018*** **Lead:** Helen Lynch, UCD. **Publication year:** 2022. **Report available:** here **2. *A Review on Campylobacteriosis Associated with Poultry Meat Consumption*** **Lead:** Peter Myintzaw, TU Dublin. **Publication year:** 2021. **Report available:** here, **3. *15F641 - Clean Broilers through Enhanced Farm Biosecurity, Processing Prerequisites and HACCP Based Interventions*** **Lead:** Dr Declan Bolton, Teagasc. **Funded by**: DAFM, FIRM 15F641.

Research area	Research need	Relevant Irish research projects initiated 2011 onwards that the FSAI is aware of
	and levels of *Campylobacter* on broiler carcasses. Candidate processes include the following: • Investigate the optimisation of thinning protocols to identify key steps in managing introduction of *Campylobacter* colonisation of remaining chickens that are not harvested. Such protocols would fall into two broad categories of; managing risk of thinning introducing biological contamination; and thinning introducing stresses for remaining birds to facilitate colonisation. Aspects of particular interest to the FSAI In the first category include thinning approaches with equipment and personnel engaged in both thinning and depopulation, while in the second category light and feed alterations around and after thinning are of interest. • Investigate optimisation strategies for key slaughter process steps to reduce *Campylobacter* concentrations, with particular focus on the pre-scald bleed, scald process, defeathering process, carcass washing process, and primary chilling process. Scald temperatures, defeathering pressure, • Develop and test practical measures to prevent or minimise cross contamination with *Campylobacter* between flocks during slaughter, considering that some flocks will be *Campylobacter* negative and others *Campylobacter* positive with varying levels of contamination.	**Start year**: 2015. **Report available:** here. ***4. Campylobacter Control on Irish Broiler Farms (Campy-Control).*** **Lead:** Paul Whyte, UCD. **Funded by**: DAFM, FIRM 15F641. **Start year**: 2012. **Report available:** here. **5. *Poultry microbiome – interaction between virus infection and Campylobacter*** **Lead:** Jignasha Patel, Teagasc, in collaboration with the Agri-food and Bioscience Institute Northern Ireland. **Funded by**: EU Marie Curie/Teagasc. **Start yea**r: 2023. **Report not available.**

Research area	Research need	Relevant Irish research projects initiated 2011 onwards that the FSAI is aware of
	Focus on measures that account for the quantitative risk (contamination level) presented by a flock rather than its qualitative risk (positive/negative). The FSAI is open to systems reliant on previous thinning as a surrogate for *Campylobacter* status.	
Exploring the food safety risk of *Yersinia* in Ireland	Yersiniosis is the fourth most reported gastrointestinal infection, and the third most common potentially foodborne and potentially zoonotic pathogen in the EU (European Centre for Disease Prevention and Control (ECDC), 2024). Yersiniosis describes a gastrointestinal infection by the gram-negative bacteria *Yersinia enterocolitica* and *Yersinia pseudotuberculosis*, the former being the more common cause. The primary symptoms of yersiniosis include fever, diarrhoea and abdominal pain but can also include sore throat, erythema nodosum, and in more serious cases sepsis or reactive arthritis. However, fatality rates are low. Pigs are the significant asymptomatic carriers of the human pathogen *Yersinia enterocolitica.* However, the organism may also be present in the intestines or faeces of rodents, sheep, cattle, cats, dogs and horses. *Y.enterocolitica* human illness cases have been associated with the consumption of poorly prepared pork, chicken, milk, salmon, ready-to-eat salads, and vegetables which have been contaminated	**1. *Epidemiology and comparative analysis of Yersinia in Ireland (PhD Thesis)*** **Lead:** Tamara Ringwood, UCC. **Fu**nded by**:** UCC. **Publication year:** 2013 **Report available:** here. **2. *Current evidence for human yersiniosis in Ireland*** *Eur J Clin Microbiol Infect Dis* 31, 2969–2981 (2012). **Lead:** Ringwood, T., Murphy, B.P., Drummond, N. *et al.* **Funded by:** DAFM, FIRM 06/R&D/D419.

Research area	Research need	Relevant Irish research projects initiated 2011 onwards that the FSAI is aware of
	with human or animal-derived faecal contamination (McGill, Hill and Solomon, 2013). Yersiniosis of people is a notifiable disease in Ireland and recent data in humans shows a concerning increase in reported disease: 52 cases in 2025 (provisional data), 40 cases in 2024, 30 cases in 2023 and 17 cases in 2022. There are no microbiological criteria for *Yersinia* in any foods in EU law. Recent reports from the United Kingdom suggest that *Y. enterocolitica* isolates from food characterised as biotype 1A (previously considered non-pathogenic) have sequence types which were previously isolated from human cases. In Ireland there are very limited data on *Yersinia* detection in some animals and little to no data on *Yersinia* prevalence or concentrations in food of animal origin or non-animal origin. Research of interest to the FSAI includes: • Representative sampling and monitoring of prevalence, concentration and types of *Yersinia* carried by Irish food animals • Representative sampling and monitoring of foods of terrestrial and aquatic animal origin and ready-to-eat salads and vegetables, and analysis for prevalence and concentrations of *Yersinia enterocolitica* and *Yersinia pseudotuberculosis*	**Publication year:** 2012. **Report available:** here.

Research area	Research need	Relevant Irish research projects initiated 2011 onwards that the FSAI is aware of
	• Whole Genome Sequencing (WGS) of isolates, comparison with genotypes of isolates from human yersiniosis cases, and analysis of virulence traits.	
The risk posed by Hepatitis E in pig meat and pig meat products	The FSAI Scientific Committee has identified gaps in knowledge in Hepatitis E (HEV) prevalence in pig meat, live pigs and humans in its 2026 report (in publication) Future research needs to focus on monitoring high risk pig meat products to build an evidence base for a better understanding of their contribution to human HEV infection in Ireland. This could include qualitative and quantitative epidemiological studies and WGS. Thus, there is an important role for research to assess the value of surveillance approaches and test methodologies to inform decisions on implementing formal surveillance systems. Specifically, research should focus on: • Estimation of the prevalence of Hepatitis E in pig meat and pig farms in Ireland • Estimation of the prevalence of Hepatitis E in wastewater both before and after treatment in Ireland	**1. FoVIRA:** ***Assessing the prevalence of NoV, HAV, HEV and SaV, as well as establishing a method for the detection of HEV in oysters*** **Lead:** Joanne O'Gorman, formerly UCD in collaboration with Marine Institute and Central Veterinary Research Laboratory. **Funded by:** DAFM, FIRM 15F724. **Start year:** 2015. **Report not available.**

Research area	Research need	Relevant Irish research projects initiated 2011 onwards that the FSAI is aware of
	• The use of WGS to determine the transmission pathway and direction of transmission of Hepatitis E in pigs, pig meat, people and the environment.	

Allergens

Research area	Research need	Relevant Irish research projects in progress or completed since 2010 that the FSAI is aware of
Development of data for allergen risk assessment	Currently, a food can be deemed unsafe if the undeclared significant presence of any of the 14 EU-regulated food allergens is established. The FSAI Scientific Committee has published a scientific approach to risk assessment which aims to provide a scientific basis for a more proportionate approach, while still protecting consumer health. One element of the risk assessment requires the application of reliable data on the prevalence in Ireland of immune-mediated reaction to the EU 12 (EU 14 minus gluten and sulphite) allergens. Research is required to provide an accurate baseline of the prevalence of immune-mediated reaction to the EU 12 (EU 14 minus gluten and sulphite) allergens in Ireland, as well as a scientifically robust methodology for updating such data in a national register.	None notified.

Chemical safety

Research area	Research need	Relevant Irish research projects in progress or completed since 2010 that the FSAI is aware of
Identification of mitigation measures for mycotoxins in Irish crops	Consumer protection from the harmful effects of mycotoxins requires good mitigation measures to prevent contamination on the farm, during transport, and when storing plant-based food and feed. At manufacturing level, it is important that supplies of these ingredients are safe at the point of delivery. Due to climate change and other factors, it is expected that the profile and concentration of mycotoxin contamination of Irish crops and Irish foods (including foods of animal origin) will change as warmer but wetter weather prevails. Therefore, there is a need to identify mitigation measures for mycotoxins, tailored to Irish production systems, that can be implemented at various stages of the food and feed supply chains.	**1.** ***Mycotox-I: field to fork assessment and mitigation of mycotoxin exposure risk on the island of Ireland*** **Lead:** Fiona Doohan, UCD. **Funded by:** DAFM, FIRM 2021R460. **Start year:** 2021. **Report not available.**
Generation of occurrence data for Per- and polyfluoroalkyl substances in food	Per- and polyfluoroalkyl substances (PFAS) are a group of man-made chemicals that are manufactured and used in a variety of industries around the world (for example textiles, household products, firefighting, automotive, food processing, construction and electronics). Continuous exposure to these persistent organic chemicals over time may lead to adverse health effects. People can be exposed to PFAS in	**1.** ***INVESTigating PFAS from Source to sink - Assessing risk to inform a PFAS Strategy in Ireland*** **Lead:** Fiona Regan, Dublin City University (DCU). **Funded by:** EPA. **Start year:** 2023.

Research area	Research need	Relevant Irish research projects in progress or completed since 2010 that the FSAI is aware of
	different ways, including through food. These substances are most often found in drinking water, fish, fruit, eggs, and egg products. In 2020,)EFSA published a scientific opinion Ton the risk to human health related to PFAS in food. EFSA considered the decreased response of the immune system to vaccination to be the most critical human health effect when determining a health-based guidance value. In its conclusions, EFSA identified exceedances of the health-based guidance value by the population and therefore, a concern for human health is evident. In response to these findings the European Commission put in place maximum levels for certain foodstuffs (Regulation (EU) No 2022/2388). It also called for further monitoring (Recommendation (EU) No 2022/1431) for the years 2022–2025 to gather data on the occurrence in foodstuffs for which data was lacking. The Commission indicated that monitoring should include a wide variety of foodstuffs reflecting consumption habits, including fruits, vegetables, starchy roots and tubers, seaweed, cereals, nuts, oilseeds, food for infants and young children, food of animal origin, non-alcoholic drinks, wine and beer. Considering that PFAS can enter the food chain via several pathways, such as environmental contamination, food packaging, and so on.,	**Report not available.** Note: this project has relevance in this space but is not addressing all aspects of the research need. **2. *Dietary Exposure and Risk to health of Per- and poly-fluroAlkyl substances: an Irish perspective (DISREPAIR)*** **Lead:** Eileen Ryan, UCC. **Funded by:** EPA. **Start year:** 2025. **Report not available.** Note: This project has relevance in this space but is not addressing all aspects of the research need.

Research area	Research need	Relevant Irish research projects in progress or completed since 2010 that the FSAI is aware of
	research into the occurrence of PFAS in these sources and its transfer to food is needed to inform future risk assessments and risk management measures. Mitigation measures need to be developed to inform best practice for avoidance of PFAS contamination of food above safe levels.	
Generation of migration data for chemical substances that move into foods from proposed/new food contact materials	Some groups of food contact materials (for example, plastics) are already subject to specific EU measures, which include migration limits to protect public health. Testing for migration is generally done in simulants, which are specified in legislation. However, this is a fast-changing field of work and new food contact materials are being proposed or researched that may pose food safety risks as yet unknown. These new materials include the use of more natural substances such as bamboo, wood, rice and wheat. There is also the continued growth of recycling to provide new, more sustainable sources of food contact materials in line with developing environmental policies. Two major food issues arise from this. The first is risk assessment, which requires an understanding of the migration of the constituents of food contact materials into foods or food simulants. The second issue is the migration of potentially unsafe and unknown chemicals from new and emerging food contact materials and recycled materials, and their associated hazards (for example, allergen risks and unknown contaminants). The increasing use of recycled food contact materials,	**1. *New Active Sustainable Packaging with Natural Antimicrobials for Shelf-Life extension of Fish Products*** **Lead:** Malco Cruz-Romero, UCC. **Funded by:** DAFM, FIRM 2021R412. **Start year:** 2021. Update: expected completion date is January 2027. **Report not available.** **2. *PECTIPACK- Eco-friendly Compostable Pectin based Packaging Material Derived from Waste Sources of Fruit Pulp and Its Validation in Bread Packaging*** *(not clear from project summary if food safety is being considered)*

Research area	Research need	Relevant Irish research projects in progress or completed since 2010 that the FSAI is aware of
	particularly plastics for re-use as food contact materials, may also present issues for food safety. Research on the use of natural/sustainable alternatives to plastic, printing inks, paper and board, and intelligent/active packaging is needed to investigate their potential food safety implications when in contact with food. Research is also needed to safeguard consumer health and build competence for regulators to evaluate these materials. Note: Research should build on the current state-of-the-art as this is a very active research area.	**Lead:** Dr Joe Kerry, UCC. **Funded by:** DAFM, FIRM 2019R248. **Start year:** 2019. Update: expected completion date is December 2026**.** **Report not available.**
Prevalence of natural plant toxins in Irish horticulture crops and food animals	Increased knowledge on the toxicological risks posed by naturally occurring plant toxins (e.g. tropane, pyrrolizidine, opium, quinolizidine and glycoalkaloids, erucic acid, delta-9-tetrahydrocannabinol and cyanogenic glycosides) has led to the implementation of several regulatory measures. Some of these substances are acutely toxic, and exposure must be maintained at very low levels. In the context of EU sustainability initiatives, the desire to increase biodiversity and hence reduce pesticide usage may exacerbate the risks of natural plant toxins in Irish food. Irish food must comply with regulatory limits for plant toxins. Hence there is a need to establish the seasonal prevalence of these hazards in Irish-	None notified.

Research area	Research need	Relevant Irish research projects in progress or completed since 2010 that the FSAI is aware of
	grown crops, and Irish food animals grazing and feeding on pastures or crops. There is also a need to develop valid and practical mitigation strategies consistent with the targets of the *EU Farm to Fork Strategy* (for example, good agricultural practices and variety development). Specifically, research is needed to: • Establish the seasonal presence of the plant toxins named above in relevant Irish grown crops and, where relevant, in food animals grazing and feeding on pastures or crops. • Develop appropriate mitigation measures, both at production and processing levels, that ensure Irish food and feed compliance with relevant EU maximum levels for these natural plant toxins. The need to reduce pesticide usage should be accounted for in this research. • Understand the possible transfer of these natural toxins to food animals, their tissues and milk.	
Emerging novel toxins in the Irish aquatic environment – characterising algal species and their potential	Climate change is altering the temperature, salinity, and nutrient availability in the aquatic environment. Toxic events due to the growth of toxic phytoplankton need to be anticipated and measures put in place to protect public health. Emerging risk work at EU level has shown the existence of toxigenic species of phytoplankton in areas outside their previously known range.	**1. *ToxVib - Genomics to Investigate Risks of Toxin-Producing Vibrio in Irish Shellfish*** **Lead:** Dr Aoife Boyd, University of Galway. **Funded by:** DAFM, FIRM 2019R531. **Start year:** 2019.

Research area	Research need	Relevant Irish research projects in progress or completed since 2010 that the FSAI is aware of
impacts, due to climate change, on human health	For example, *Alexandrium* species. and Paralytic Shellfish Poisoning (PSP) have begun to occur in Kerry. Ciguatoxin has been detected in fish in the Canary Islands and phytoplankton carrying the toxin genes have been detected in the Eastern Mediterranean. Blue-green algal blooms in freshwater bodies are also becoming a more frequent occurrence with potential for toxigenic strains and accumulation in aquatic animals. Tetrodotoxin (TTX) has been detected in EU waters at latitudes analogous to Irish waters, as have Vibrio species which are potential contributors to TTX biotransformation. Specific research needs include: • An understanding of the changes in the aquatic environment - marine, estuarine and freshwater - due to climate pressures that favour the growth of certain known but until now exotic toxic phytoplankton species. This includes the presence, if any, of phytoplankton, biotransformation organisms, or the toxins themselves new to those regions (for example. TTX and ciguatoxins). • Temperature and salinity modelling to assist forecasting of geographic and temporal pattern shifts for toxin profiles (e.g. PSP in Kerry), and differences between the west and east coasts of Ireland.	**Report not available.**

Research area	Research need	Relevant Irish research projects in progress or completed since 2010 that the FSAI is aware of
	• Research into the existence of, until now, unknown species of toxic phytoplankton in Irish waters, and the conditions which favour their growth, their production of toxins, and their biotransformation. • Design and costing of effective sustainable sentinel surveillance strategies, including sampling and analytic approaches, for Irish marine and freshwaters.	
Investigations on the reduction of the usage levels of the food additives; sulphur dioxide and sulphites (E220-228) in certain foods	Sulphur dioxide and sulphites (E220-228) are authorised food additives in the EU, and their conditions of use are specified in Regulation (EC) No 1333/2008. In 2022 EFSA published its re-evaluation of these food additives, which identified that certain dietary exposure scenarios raised a safety concern for various population groups. In 2025, EFSA published a technical report on an update of the dietary exposure to these food additives using alternative maximum levels. Although the exposure was reduced, the assessment may indicate the need for further refinement and revision of maximum levels. For the revised regulatory maximum level scenarios, the main contributors to the dietary exposure for different population groups included: wine, beer, fruit and vegetable juices, dried fruits and vegetables, flavoured drinks, and processed potato products.	None notified.

Research area	Research need	Relevant Irish research projects in progress or completed since 2010 that the FSAI is aware of
	As a result, risk management measures are under consideration at EU level, which may include the deletion or the reduction of certain maximum levels. As part of the FSAI's monitoring activities, it is apparent that these food additives are particularly used in Ireland for the preservation of peeled potatoes under food category 4.1.2 'Peeled, cut and shredded fruit and vegetables'. They are also used in breakfast sausages and burger meat (with a minimum vegetable and/or cereal content of 4% mixed within the meat) under food category 8.2 'Meat preparations as defined by Regulation (EC) No 853/2004' in Regulation (EC) No 1333/2008. Research is needed to: • Investigate what reductions in the usage levels of these food additives are feasible for foodstuffs manufactured in Ireland while maintaining the necessary technological function. • If looking at alternatives to these food additives, consider the food additives legislation (Regulation (EC) No 1333/2008).	

Public health nutrition

Research area	Research need	Relevant Irish research projects in progress or completed since 2010 that the FSAI is aware of
Reduction of fat, sugar, and salt in consumer foods	Obesity and cardiovascular diseases are major threats to the health of the Irish population. Reformulation, with a focus on reductions in calories, saturated fat, sugar, and salt, to improve the nutritional profile of food is an important long-term activity to combat foodrelated ill health. Research should focus on the feasibility of producing food products, particularly in priority food categories for reformulation and in baby and toddler foods, that meet all reformulation targets set by DOH (i.e., saturated fats, sugar, and salt) across all consumer food categories (prepacked and non-prepacked food). Reformulation should simultaneously address all relevant nutrients of concern in a product; for example, reducing sugar while not increasing saturated fat, salt, and calorie content. Reformulation research on sugar should identify practical options for the reduction and (if required) replacement of sugar with nutrients containing much lower calorific value (for example, fibre). This is to ensure an energy reduction in the product as well as a reduction in sugar content. Such replacement options need to be rigorously researched to ensure safety for all population cohorts, including children and those with fibre-sensitive	See food consumption studies listed earlier in this report. **1.** ***Food Reformulation for Consumers: Understanding barriers to consumer acceptance of reformulated food products (FORC)*** **Lead:** Prof. Patrick Wall, UCD. **Funded by:** DAFM, FIRM 13F460. **Start year:** 2013. **Report available:** here. **2.** ***PROSSLOW: Development of consumer accepted low salt and low lipid Irish traditional processed meats*** **Lead:** Dr Maurice O'Sullivan, UCC. **Funded by:** DAFM, FIRM 11F026. **Start year:** 2011.

Research area	Research need	Relevant Irish research projects in progress or completed since 2010 that the FSAI is aware of
	conditions such as irritable bowel syndrome (IBS) and inflammatory bowel disease (IBD). Research should also investigate the potential impact of reformulation efforts in respect to people on restricted diets. For example, individuals with inborn errors of metabolism such as phenylketonuria (PKU), who can't metabolise aspartame. Research needs to identify potential adverse effects and explore mitigating measures (for example, warning labels).	**Report available:** here. Note: there may also have been research funded by DAFM in this area prior to 2010 on ready meals and bread.
Risk assessment for high dose vitamins and mineral supplements	EFSA were tasked by the European Commission to review past scientific opinions on the tolerable upper intake levels (ULs) for selenium, vitamin B6, folic acid/folate, vitamin D, manganese, iron, vitamin A and β-carotene, and vitamin E, and to consider recent scientific developments and evidence. For example, EFSA has released its *Scientific opinion on the Tolerable Upper Intake Level (UL) 1 for vitamin B6* where it proposes to reduce the UL for vitamin B6 from 25 mg/day to 12.5 mg/day. Based on data from case reports and recent nutrivigilance data, a causal relationship between high vitamin B6 intake and peripheral neuropathy is well established and is the critical effect on which the UL is based. While hypotheses for the potential mechanisms of toxicity have recently been put forward, the causal mechanisms are still unknown. Considering the popularity of	None notified.

Research area	Research need	Relevant Irish research projects in progress or completed since 2010 that the FSAI is aware of
	vitamin B6 and its availability to the public, more research is warranted to better understand the safety profile of high dose vitamin B6 supplements. In addition, in the conclusions of their draft opinion EFSA put forward several research recommendations: • Additional research is needed regarding potential differences in the toxicity profile of the different vitamers of vitamin B6. • Additional research on toxicokinetics and toxicodynamics could help to refine the derivation of an uncertainty factor. • Further investigation of the mechanisms of vitamin B6 toxicity in humans is needed and the identification of genetic traits that may influence individual susceptibility. EFSA has identified similar research recommendations for each nutrient (selenium, vitamin B6, folic acid/folate, vitamin D, manganese, iron, vitamin A and β-carotene, and vitamin E). Such information is required to further understand the safety profile of high dose supplements containing these nutrients. Relevant EFSA scientific opinions: **2022:** *Scientific opinion on the tolerable upper intake level for selenium*	

Research area	Research need	Relevant Irish research projects in progress or completed since 2010 that the FSAI is aware of
	2023: *Scientific opinion on the tolerable upper intake level for vitamin B6* *Scientific opinion on the tolerable upper intake level for folate* *Scientific opinion on the tolerable upper intake level for vitamin D, including the derivation of a conversion factor for calcidiol monohydrate* *Scientific opinion on the tolerable upper intake level for manganese* **2024:** *Scientific opinion on the tolerable upper intake level for iron* *Scientific opinion on the tolerable upper intake level for preformed vitamin A and β-carotene* *Scientific opinion on the tolerable upper intake level for vitamin E*	
Nutrient degradation of powdered infant formula	The World Health Organization (WHO) recommends that water used to reconstitute powdered infant formula (PIF) is ≥70 °C to eliminate harmful bacteria such as *Cronobacter sakazakii*. The FSAI guidance note *Information Relevant to the Development of Guidance Material for the Safe Feeding of Reconstituted Powdered Infant Formula* is in line with the WHO recommendations.	None notified.

Research area	Research need	Relevant Irish research projects in progress or completed since 2010 that the FSAI is aware of
	The WHO guidelines describe concerns over the use of very hot water in PIF reconstitution due to loss of heat sensitive nutrients. A study presented at a 2006 Food and Agriculture Organization of the United Nations (FAO)/WHO expert meeting indicated that reduction in vitamin levels from use of water at >70 °C was not significant. However, agreements were not made for specific recommendations on the issue as the data was based on a single study only. Since the publication of these guidelines in 2007, there has been an increase in the use and availability of automated PIF preparation machines. The WHO guidelines did not consider the impact of the preparation machines on the potential degradation of heat-sensitive nutrients, including vitamin C. Therefore, further research is needed to investigate the nutrient degradation of heat-sensitive nutrients when using automated formula preparation machines. This research could identify potential considerations to ensure compliance with the compositional requirements for infant formula when using PIF preparation machines. These composition requirements are set out in Commission Delegated Regulation (EU) No 2016/127, as given effect by the EU (Food Intended for Infants and Young Children, Food for Special Medical Purposes, and Total Diet Replacement for Weight Control) Regulations 2019 (S.I. No 425/2019) as amended by S.I. No 490/2023.	

Research area	Research need	Relevant Irish research projects in progress or completed since 2010 that the FSAI is aware of
	Infants are a vulnerable group who depend on PIF and follow-on-formula when not breastfed, and ensuring their nutritional needs are met by these products is of significant public health importance.	
Botanicals and nutrivigilance	Botanicals and derived preparations made from plants, algae, fungi or lichens have become widely available on the EU market in the form of food supplements. These products can be bought over-the-counter in health food stores, pharmacies, and over the Internet. While many of these products have a long history of use, there may be concerns about the safety of some plant preparations and the substances associated with them. EFSA has created a compendium of botanicals, which is updated regularly and collates information on possible adverse effects along with botanical consumption. The adverse reaction events which form the basis of this compendium are not effectively monitored or recorded in Ireland. The creation of a database of adverse effects would help inform decisions on the safety and quality criteria of botanical food supplements. Furthermore, the creation of a nutrivigilance system which records these adverse effects may allow for fast responses to increased consumption of potentially harmful food supplements.	None notified.

Research area	Research need	Relevant Irish research projects in progress or completed since 2010 that the FSAI is aware of
	Supplementary work could involve gathering information on the prevalence of botanical food supplements on the market. This could inform of the likelihood of issues occurring when specific botanicals are identified as substances of concern, at national or EU level.	
Bezoars and nutrivigilance	Adverse reaction events caused by nutrients in foods are not formally recorded in Ireland via a nutrivigilance system. Between 2009–2024 The French authority ANSES (Agency for Food, Environmental and Occupational Health & Safety) recorded 11 cases of oesophageal and gastric obstruction due to bezoar formation attributed to consumption of a fibre-containing gastric tube-fed nutrition product, in an intensive care unit. Of these cases 8 were graded with severity level 3*, and one with severity level 4 resulting in a death. These findings led ANSES to alert healthcare professionals of the risk of bezoar formation in patients with slowed digestive transit when taking EN. The creation of a nutrivigilance system in Ireland would: • Allow greater visibility of these adverse events and increase the safety of patients using these types of products.	None notified.

Research area	Research need	Relevant Irish research projects in progress or completed since 2010 that the FSAI is aware of
	• Inform the need for EN manufacturers to conduct studies to investigate bezoar formation by their products, particularly drug interactions commonly used by enterally fed patients. *Severity levels: level 1: asymptomatic; level 2: self-limiting, symptomatic but uncomplicated; level 3: complicated (impeding oral or enteral feeding) or extraction required; level 3: LT: perforation, inhalation, haemorrhage, life-threatening; level 4: deaths.	
Identifying barriers and enablers to healthier children's meals in foodservice outlets	In 2025, the Food Reformulation Task Force published a report titled *Food Reformulation Task Force: Benchmarking the nutrient content of children's meals sold in the foodservice sector and guiding principles for their reformulation*. This survey found that the majority of children's meals sampled and analysed were high in energy (calories), saturated fat, total sugar, and salt, and require reformulation. These findings were used to inform guiding principles to improve the nutrient quality of meals offered on children's menus in Irish food service outlets. The out-of-home food service sector is asked to help reduce children's dietary intakes of energy (calories) and target nutrient content (saturated fat, sugar and salt), as outlined in the *Roadmap for Food Product Reformulation in Ireland*.	None notified.

Research area	Research need	Relevant Irish research projects in progress or completed since 2010 that the FSAI is aware of
	Research is required to understand the barriers and enablers to implementing the guiding principles to improve the nutrient quality of meals offered on children's menus in Irish food service outlets, such as: • Parents selecting healthier meals for their children when eating out of home • Food service outlets offering and selling healthier children's meals • Chefs preparing healthier children's meals in the out-of-home food service sector.	

Social science

Research area	Research need	Relevant Irish research projects in progress or completed since 2010 that the FSAI is aware of
Food safety culture	Self-regulation is the norm in many industries, for example finance, electrics, and pharmaceuticals. In these industries potential consumer harm is managed by the company's own compliance reviews. However, the paradigm of the regulator and the regulated in food safety compliance sometimes tends towards a very different culture of food safety arising from compulsion as opposed to choice. EU food safety legislation now requires the development, maintenance, and evidence of an appropriate food safety culture in many food businesses. This requires food businesses to consider what their food safety culture is, and how to embed it into their business so that it can be verified by regulators. Research into the marked difference in safety assurance cultures across different industrial sectors may yield insight to culture-forming initiatives that are transferrable from non-food sectors to food production. Research needs include: • Safety assurance cultures in other industries e.g. pharmaceutical • Behavioural and leadership drivers within food production which support an explicit culture of food safety as a priority	None notified.

Research area	Research need	Relevant Irish research projects in progress or completed since 2010 that the FSAI is aware of
	• Potential impediments which might increase the risk of food safety culture being suboptimal • Practical interventions which can be applied to drive an ethos of food safety culture in food businesses • For the purposes of official controls of adequate compliance with legal obligations, identify tangible indices of adequate food safety culture and early-warning indicators of poor food safety culture that could be used to verify compliance.	
Food operation expansion risk assessment	An anecdotal contributor to food safety issues is any rapid expansion of food production volume or complexity. Increased commercial output can stretch physical structures and assurance systems designed for much more moderate operations. Raw material diversity, new processes, and new equipment, when imposed on pre-existing structures and systems can detract from food safety risk management effectiveness. Research is needed to identify drivers related to business expansion that result in increasing food safety risks. This work could include: • Economic drivers • Physical drivers • Behavioural drivers.	None notified.

Research area	Research need	Relevant Irish research projects in progress or completed since 2010 that the FSAI is aware of
	A set of early indicators would be helpful to identify when food safety is becoming compromised, so that proactive action can be taken to protect public health. The FSAI is also interested in open source data mining initiatives which could derive an index of food business growth. This index could input into risk-assessment to inform official control frequency.	
Investigating levers to stimulate the reduction of salt, saturated fat, sugar, and calories in food	The reduction of nutrients of public health concern such as salt, saturated fat, sugar, and energy (calories) is essential to address the rise in food-related ill health. Fiscal policies, front of pack nutrition labelling, and restrictions on advertising to children have been shown to stimulate the reduction of nutrients of public health concern in the food supply. This research project would inform the extent to which mandatory measures stimulate food reformulation, and identify the factors that influence the level of reformulation achieved. This research could also explore the health equity of mandatory measures for food reformulation.	**1. *Fiscal and pricing policies related to food and non-alcoholic drinks: A review of the evidence*** **Lead**: safefood. **Funded by**: safefood. **Start yea**r: 2023. **Report available:** here.
Investigating a sustainable solution for branded food composition monitoring in Ireland	A branded food database is a collection of detailed nutritional and product information for commercially available, brand-name food and beverage products. These are packaged foods sold in supermarkets such as bread, breakfast cereal, and snacks, sold under specific brand names.	***1. Piloting a branded food database for reformulation monitoring in Ireland*** **Lead:** UCD. **Funded by:** Insight, Research Ireland.

Research area	Research need	Relevant Irish research projects in progress or completed since 2010 that the FSAI is aware of
	In Ireland there are two databases that collect information for some branded foods, but no branded food database with a market-wide view of all branded food products on the market: 1. The Irish National Food Ingredient Database (INFID) is a multifaceted database collated from foods consumed in Irish food consumption surveys. INFID lists have detailed prepackaged food product information (for example, ingredient and nutrient information) since 2009. 2. The Food Composition and Labelling Information System (CLAS) Ireland is a branded food database with a cloud web platform that supports efficient and systematic data extraction and processing. CLAS was developed by the Nutrition Institute, Slovenia, and adopted for use by the Food Reformulation Task Force to support food composition monitoring of the priority food categories for reformulation. Branded food databases provide up-to-date information on the labels, ingredients, and nutrition composition of branded foods to enable nutrition-related decision-making (e.g. policy and strategy design and evaluation). Research is needed to inform and support the establishment of a sustainable branded food database, which uses technological advancements such as legal web scraping and AI, to provide comprehensive and efficient branded food composition monitoring.	**Start year:** 2023. **Abstract available:** Here.

Research area	Research need	Relevant Irish research projects in progress or completed since 2010 that the FSAI is aware of
Cultural and generational influences on food safety practices, beliefs, and behaviours	Cultural norms and generational differences play a significant role in shaping what is considered important regarding food safety. For example, in some cultures traditional food preparation methods may emphasise practices that minimise perceived risks, while others may focus more on efficiency and convenience, potentially overlooking safety concerns. What is salient across different cultures and generations may also differ. Consumers from different cultures or age groups may prioritise different food safety aspects, such as cleanliness, popularity, or convenience, based on their own experiences and socialisation. Research is needed to explore how consumers make decisions regarding food safety, including the role of perceived risks, trust in food sources, and how personal and cultural values influence these choices. Risk perception is particularly variable, with some populations viewing food safety risks as more significant or imminent than others. This is often influenced by past foodborne illness experiences or (social) media exposure. Cultural practices and beliefs can also shape consumers' attitudes towards food safety, often leading to contrasting views and behaviours across regions, generations, and cultural groups. Understanding these dynamics can help develop more effective, culturally tailored food safety interventions that resonate with diverse consumer groups and promote better practices. Areas for research include:	None notified.

Research area	Research need	Relevant Irish research projects in progress or completed since 2010 that the FSAI is aware of
	• Cultural norms that either promote or discourage certain food safety practices (e.g. how foods are handled in different regions or countries, or how food safety is viewed in different social situations). • The influence of traditions and social food practices on behaviours (e.g., how social media influencers or food business social media accounts may alter generational views of food safety or what is acceptable). • Understanding cultural or generational resistance to adopting certain food safety guidelines, even if they are scientifically supported (e.g. Gen X perception of 'best by' and 'use by' date).	
Food safety inspector behaviour	A key area for research in food safety involves understanding the behaviour and decision-making processes of food safety inspectors undertaking official controls, particularly the factors that drive what they prioritise during inspections. Inspectors often face a complex set of variables when determining what to focus on, influenced by their training, experience, and personal judgement, as well as external pressures like time constraints and regulatory requirements. Understanding what inspectors perceive as the right things to look at or give more weight to during an inspection - whether it's physical hazards, hygiene practices, or food handling techniques - can shed light on the efficacy of current inspection protocols. Despite robust training and	None notified.

Research area	Research need	Relevant Irish research projects in progress or completed since 2010 that the FSAI is aware of
	experience, humans are fallible and will be influenced by numerous factors. For example, what everyone's brain finds salient will differ. Brains are filters, meant to determine what to focus on and importantly what not to focus on. Everyone will naturally give more weight to some areas. Even the best inspector will naturally see one thing more prominently over others due to the way the brain functions. Factors like time will differently impact each inspection process. Additionally, as technology changes all the current indicators may not directly correlate with actual food safety hazards. Investigating these drivers, can lead to identifying potential gaps in inspector training, improving the alignment of inspection practices with the most critical food safety threats, and ultimately enhancing the overall effectiveness of food safety regulation. Research could seek to answer the following questions: • What factors influence food safety inspectors' decision-making when prioritising what to inspect during an evaluation and how do contextual pressures affect their choices of inspection focus? • How does experience alter what drives an inspection? • How might time constraints change the flow of an inspection?	

Research area	Research need	Relevant Irish research projects in progress or completed since 2010 that the FSAI is aware of
	• How does changing technology impact the efficiency of current protocols and drivers?	
Investigating consumer interpretation of health claims on food labels and their perceived health effects/benefits	Research on how consumers interpret health claims on food labels is key to gaining a better understanding of how such claims influence perceptions of a product's overall healthfulness or suggested health effects. Health claims can create a 'health halo' effect, leading consumers to infer benefits that may not be scientifically substantiated. While regulators aim to ensure any claims implying a health effect are regulated under Regulation (EC) No 1924/2006, there is limited empirical evidence on how consumers interpret and use health claims when making food choices. An example of this is the use of the terms 'probiotic' and 'live' on food labels, particularly dairy products. The European Commission considers the term 'probiotic' on food labels to be a health claim because it implies that the product contains microorganisms that may result in a health benefit. There is limited evidence on the meaning attribution of health claims among consumers. For example, what do consumers think terms like 'probiotic' and 'live' mean?	None notified.

Research area	Research need	Relevant Irish research projects in progress or completed since 2010 that the FSAI is aware of
	Research is required to: • Determine consumers' understanding of certain health claims such as 'probiotic' and 'live', including perceived meaning and expected health effects. • Assess the impact of health claims on consumer choices and perception of 'healthfulness'. • Generate evidence-based recommendations and regulatory positions to avoid misleading consumers and support fair communication across the market.	

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