



Risk Insights Food Newsletter

Eurofins Food Testing UK Ltd
Issue 04 | December 2024



2024

A round-up of the year's main food integrity and safety risks

1. STEC – Shiga toxin producing *E. coli*

2. Mycotoxins

3. Heavy metals

4. Vibrio

5. Pesticides

6. PFAS

7. Allergen management

8. Flour regulations

9. Food fraud

10. Climate change

Welcome to the December 2024 newsletter from the Eurofins Compliance and Risk Management Team in which you will find a round-up of some of the main food integrity issues and emerging risks to food safety from 2024.

We are here to offer expert advice and support to help you manage the ever-evolving risks faced by food businesses.

We wish you a happy holiday season and prosperous New Year!

risk@ftuki.eurofins.com



STEC

What is STEC?

STEC (shiga toxin-producing *Escherichia coli*) refers to a group of *E. coli* strains that produce Shiga toxins which can cause serious illness and death in humans. These toxins disrupt cell function and can lead to severe gastrointestinal and systemic symptoms. The most well-known STEC strain is *E. coli* O157, though non-O157 strains also pose significant health risks.

Concerns: The rise in non-O157 strains of STEC (e.g. O26, O45, O103), pose both detection and regulation challenges.

What foods are at most risk?

STEC has been found in a wide variety of foods including; undercooked ground beef, raw milk, contaminated vegetables and unpasteurised juices. Lettuce, spinach and other leafy greens can be particularly vulnerable due to agricultural water sources and proximity to livestock.

⚠️ STEC can spread through contaminated irrigation water (for example from floods), drinking water or recreational water. The requirement of organic farming to use non-industrially produced fertilisers such as compost and manure means that extra vigilance is needed for these products.



Notable STEC outbreaks in 2024

UK: A nationwide outbreak involving STEC O145 affected over 100 people aged 2–79 years old with 37 hospitalisations. The outbreak was linked to a widely distributed food item, though investigations proved to be challenging. Prepackaged sandwiches and salads in the UK were recalled due to potential STEC contamination, highlighting vulnerabilities in complex ready-to-eat supply chains.

UK: An outbreak of illness caused by STEC O145 and linked to Lancashire raw milk cheese resulted in 30 confirmed cases, 19 of which were severe with one fatality (Dec. 2023).

USA: STEC O157 was linked to McDonald's Quarter Pounder burgers, leading to 75 reported cases, including 20 hospitalisations and one death. Contaminated sliced onions were suspected to be the source. This highlights the fact that vegetables and salads can be the food vector for STEC illness.

USA: Organic carrots which had been widely distributed across the USA were recently (November 2024) recalled urgently after 39 confirmed infections of STEC O121:H19 spanning 18 states, including 15 hospitalisations and one fatality. Contamination was believed to be linked to use of compost or manure during farming.

Prevention and response

⚠️ Enhanced testing for a broader range of STEC strains is critical.

Strengthened traceability protocols and swift recalls help to mitigate risks.

Safe food handling, including thorough washing and cooking, remains a key preventative measure along with awareness of routes of infection such as faecal contamination and proximity of livestock to water supplies.

Mycotoxins

Mycotoxins remained a significant food safety concern in 2024, posing risks to human and animal health due to their presence in crops, stored grains and processed foods.

Mycotoxins including aflatoxins, ochratoxin A, fumonisins and deoxynivalenol (DON) are produced by moulds such as *Aspergillus* and *Fusarium*. These toxins can cause acute effects which include poisoning and long-term health issues including cancer, immune suppression and liver or kidney damage. Aflatoxins are particularly carcinogenic, while ochratoxin A is linked to kidney toxicity in animals and potentially humans.

Impact of climate change

Global warming has expanded the geographic range and frequency of mycotoxin contamination. Warmer temperatures and extreme weather conditions promote mould growth in crops, exacerbating contamination risks in regions previously unaffected.

Changes to Mycotoxin legislation in 2024


From 1st July 2024, the Regulation (EU) 2023/915 introduced new maximum limits for T-2, HT-2 and DON (deoxynivalenol) mycotoxins in cereals and cereal products for use in food.

UK legislation has not, as yet, followed this reduction in permitted mycotoxin levels but exports to the EU and Northern Ireland are required to operate under the EU limits.

Emerging mycotoxins

Alongside the well-known toxins, emerging mycotoxins such as enniatins, beauvericin and *Alternaria* toxins are of increasing concern. Their interactions with other toxins and potential health impacts are areas of active research.


Prevention and detection

 Improper storage, handling and processing increase contamination risk. Circular food production methods, such as reusing food industry byproducts, can also introduce risks if not managed properly.



DON, T-2 and HT-2 mycotoxins are produced by some types of fusarium fungi.

In the UK, DON is a risk for wheat crops, especially if there is rain at flowering and harvest times.


 T-2 and HT-2 mycotoxins are a greater concern in oat crops.

Heavy metals

During 2024, concerns about heavy metal contamination in food continued to grow, with increased regulatory focus and research shedding light on its prevalence and risks.

Heavy metals such as lead (Pb), cadmium (Cd), mercury (Hg) and arsenic (As) are the most frequently identified contaminants in food. They pose significant health risks, including neurological damage, kidney issues and increased cancer risks. Chronic exposure, even at low levels, can have cumulative effects, especially in vulnerable populations such as children and pregnant women.

The presence of heavy metals in soil can be due to both natural sources and human activities. Contamination can occur through environmental factors such as polluted irrigation water, metal-containing fertilisers, disposal of high-metal waste, industrial emissions and during food processing and packaging.

 Products such as rice, seafood, leafy vegetables, herbs and spices (e.g., ground cinnamon) and cocoa-based items (e.g., dark chocolate) are particularly susceptible due to their cultivation or processing methods.

Highlighted heavy metals issues from 2024

Cadmium & lead levels in dark chocolate

An ongoing lawsuit brought against Lindt & Sprüngli (USA) could have wide-reaching implications for the chocolate industry and prompt regulatory bodies to scrutinise levels of heavy metals, including lead and cadmium in chocolate products.

Lindt's 85% cocoa Dark Chocolate Bar was alleged to contain 166% above the California Maximum Allowable Dose Levels (MADL) of lead. The level of cadmium in their dark chocolate was also brought into question.

Heavy metals in baby food

As a result of numerous studies into the presence of heavy metals in baby foods, the 'Baby Food Safety Act of 2024' was introduced in the USA. It sets scientifically-established standards for sampling and testing commercial baby foods for heavy metals and other contaminants. The legislation will apply to both domestic and imported products.

Vibrio

Vibrio are waterborne bacteria that mainly live in marine coastal waters and brackish areas (where rivers meet the sea). They thrive in temperate and warm waters with moderate salinity.

These bacteria are often associated with raw or undercooked seafood, such as oysters, clams and mussels.

⚠️ *Vibrio* bacteria, particularly *Vibrio parahaemolyticus* and *Vibrio vulnificus*, pose an increasing risk in seafood due to climate change and extreme weather events such as heatwaves. Rising ocean temperatures, coastal warming and changes in water salinity are creating favourable conditions for *Vibrio* growth in marine and brackish waters.

Vibrio can cause gastroenteritis or severe infections in humans consuming raw or undercooked seafood/shellfish, such as oysters. Contact with water containing *Vibrio* can also cause wound and ear infections.

In Europe, *Vibrio parahaemolyticus*, *Vibrio vulnificus*, and *Vibrio cholerae* are the species of highest relevance for public health regarding seafood consumption. *V. parahaemolyticus* can cause gastroenteritis in healthy individuals, while *V. vulnificus* and *V. cholerae* non-O1/non-O139 can lead to severe infections, sepsis and death in vulnerable individuals.

Furthermore, resistance to last-resort antibiotics is increasingly found in some *Vibrio* species making infection potentially fatal.

EFSA study on seafood placed, or intended to be placed on the EU market (June 2024)

Summary of study results for *Vibrio*

Vibrio parahaemolyticus was found in approximately 20% of the tested seafood samples, with one out of five positive samples containing pathogenic strains.

Vibrio vulnificus was detected in around 6% of the tested seafood samples. All identified *V. vulnificus* strains are considered potentially pathogenic.

Non-choleraenic *V. cholerae* was detected in about 4% of the tested seafood samples.

Source: [Public health aspects of *Vibrio* spp. related to the consumption of seafood in the EU \(wiley.com\)](https://www.wiley.com)



Pesticides

Chemical residues from pesticides in foods are a global food safety challenge which pose significant risks to consumer health. According to recent statistics from the Food and Agriculture Organisation of the United Nations (FAO), total pesticide use in agriculture in 2022 was 3.7 million tonnes. This equates to a 4% increase since 2021.

Climate change, pressures on food production and supply could all have an impact on pesticide use in agriculture. To keep consumers safe, it is vital that our food products are tested for the presence and level of pesticide residues.

EU's Farm to Fork Strategy

The EU's Farm to Fork Strategy is at the heart of the 'European Green Deal' (see page 12 for more information). It aims to reduce chemical pesticide use by 50% by 2030 and more hazardous pesticide use by 50% by 2030. These reductions will impact on the pesticide maximum residue levels (MRLs) which are determined and approved by the EU. These EU MRLs are expected to gradually become more restrictive.

To stay ahead of these changes, it is critical to have a proactive strategy in place to monitor pesticide levels in foods and remain compliant.



Ethylene oxide (EtO)

Ethylene oxide is used in many parts of the world as a fumigant to inhibit microbial growth on dried foods such as spices, milled cereals, herbs and seeds e.g., sesame seeds.

The use of ethylene oxide, and 2-chloroethanol (the mutagenic and carcinogenic by-product of ethylene oxide), has been banned in the European Union since 1991 and a maximum residual limit (MRL) is set for certain foods in Commission Regulation (EU) 2015/868.

⚠ However, a number of countries including Canada, USA and India allow the use of ethylene oxide as a fumigant in food storage applications such as freight containers and warehouses. This poses a potential cross-contamination risk to the stored and transported foods.

The highly volatile nature of ethylene oxide means that its common conversion product 2-chloroethanol is more likely to be present in the food. The EU MRLs for ethylene oxide is the sum of ethylene oxide and 2-chloroethanol, expressed as 'ethylene oxide'.



PFAS

What are PFAS?

PFAS are very stable compounds (sometimes referred to as ‘forever chemicals’) which are highly resistant to chemical and heat degradation. Some forms of PFAS can take over 1000 years to degrade. They were developed for their oil and water repellent properties making them useful for a wide range of consumer and industrial applications from beauty and healthcare products to non-stick pans, raincoats, stain-resistant coatings and food packaging.

Why are they of concern?

PFAS accumulate and persist in our environment, water supplies and the food chain. There is worldwide concern regarding the adverse impact arising from PFAS use on human health, wildlife and the environment. Of the relatively few well-studied PFAS, most are considered moderately to highly toxic, particularly for children’s development.

Scientific study

A recent study published in July 2024 into the effect of diet on human PFAS levels during pregnancy and breastfeeding found an association between higher consumption of fish/seafood, red meat, eggs, coffee and white rice, and higher maternal plasma and human milk PFAS concentrations. The study can be accessed via the link:

[Association of diet with per- and polyfluoroalkyl substances in plasma and human milk in the New Hampshire Birth Cohort Study - ScienceDirect](#)



PFAS European regulatory outlook

There is significant movement to ban PFAS in Europe. Governments in Denmark, Germany, the Netherlands, Sweden and Norway announced that by July 2022 they would formally propose to the European Chemicals Agency (ECHA) that these chemicals be restricted under EU’s REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals) legislation.

In Denmark, July 2020, a ban on PFAS-treated food contact materials entered into force.

The extensive joint proposal to restrict PFAS under the EU’s REACH was finally submitted in January 2023 and is still being evaluated by ECHA’s scientific committees (Dec 2024).

Allergen management

As would be expected, food allergen management continued to face challenges in 2024 with a number of notable incidents and recalls in the UK.


In the USA, the addition of sesame as the ninth major allergen came into force on 1st January 2023 as is now required to be labelled as an allergen on pre-packaged foods and dietary supplements. This compares to the 14 major food allergens that must be declared on UK and EU food labels.

Mislabelling, processing errors (such as the use of incorrect finished product packaging or raw material), formulation errors or oversights are frequently the cause of allergy alerts. It is therefore imperative to have rigorous procedures and trained staff in place to minimise the likelihood of such errors occurring.

Consumers need to have the confidence that the food they eat is accurately labelled. Likewise, food manufacturers need to ensure that their raw materials meet their required specifications. Food testing is a key tool to support this compliance.

Highlighted allergen management issues from 2024

UK: Mustard ingredients contaminated with peanuts

 In September 2024, the FSA issued an urgent allergy advice warning for individuals with peanut allergies to avoid products containing mustard due to potential peanut contamination. The contamination has been traced back to an ingredient producer in India.

To date, the recall has involved 18 updates which highlights the impact a contaminated food ingredient can have on a broad range of brands and food products, as well as the need for a robust and efficient traceability system within the supply chain.



Changes to the Bread and Flour (England) Regulations



On the 14th November 2024, the amendments to the [1998 Bread and Flour Regulations](#) in England were introduced.

The rationale for the change is that folic acid is one of the leading causes of neural tube defects (NTDs), including spina bifida, in developing babies in the womb. The Department of Health and Social Care has estimated that the fortification of non-wholemeal flour with folic acid will prevent around 200 cases of brain and spine defects in babies every year.

At present, the amendments are only applicable to England, but the other UK devolved nations are also considering their own measures.

The technical changes and updated enforcement provisions take effect from 13th December 2024. There is a two-year transitional period for the folic acid provision which comes into force on 13th December 2026.

Labelling and packaging of non-wholemeal flour, as well as products where non-wholemeal flour is used as an ingredient, will need to declare 'folic acid' in the compound ingredients.



Summary of changes

- The new amended Bread and Flour Regulations apply in England only.
- Mandatory folic acid fortification of non-wholemeal flour produced in the UK from 13th December 2026.
- Technical amendments including increasing minimum levels of nutrients needed by Assimilated EU Regulation 1925/2006 and updating the specification criteria for calcium carbonate in line with Assimilated EU Regulation 231/2012 (13th December 2024).
- Update to compositional requirements of wholemeal flour to ensure improved compliance and consumer protection (13th December 2024).
- Small-scale millers producing less than 500 metric tonnes of flour per year are exempt from the fortification requirements (13th December 2024).
- Enforcement Officers will have the ability to use Improvement Notices as a more proportionate and efficient way to address non-compliance.



Food Fraud

In 2024, food fraud remained a significant challenge for the food industry globally, impacting consumer safety and trust.

Adulteration and substitution

Honey continues to be a major target for adulteration, often diluted with sugar syrups. Olive oil fraud also persists, with lower-quality oils falsely labelled as extra virgin olive oil.

Meat and seafood products frequently face substitution issues, such as undeclared species or additives.

Examples of fraudulent practices involving fish products include the addition of undeclared water or using cheaper species mislabelled as premium.



Labelling and document forgery

Mislabelling, such as false health claims, ingredient substitution or product origin, has risen over 2024. Forgery in live animal trade, particularly involving health certificates and documentation also remains a serious issue.

Emerging challenges in traceability

Although digitalisation has in many cases improved traceability, it does also pose a risk for sophisticated methods of data-forgery such as counterfeit certifications. Catastrophic weather events can force buyers to turn to new suppliers who might not have been subject to their usual quality assurance checks.

Multi-country fraud networks

Complex and lucrative food fraud incidents, such as the European network involved in the fraudulent sale of fruit and vegetables falsely labelled as organic, highlight the increasing sophistication of food fraud operations.



New European Food Fraud Community of Practice (EFF-CoP)

The European Food Fraud Community of practice (EFF-CoP) is a newly formed research and innovation partnership funded by the EU and coordinated by University College Dublin. It is a 3-year project due to launch on 1st January 2025.

It aims to support global food defence by improving food supply chain authenticity, traceability and transparency. The project is looking to gather more than 5,000 stakeholders from a diverse range of sectors including scientists, regulators, laboratories, large- and small-sized industry members, the organic sector and other groups and individuals.

The EFF-CoP intends to engage with its stakeholders and the broader food community to share research and innovation resources, develop new best practice recommendation, factsheets and case studies, plus live and virtual events to encourage collaboration.

Suggested events include food fraud festivals, podcasts, EFF-CoP 'on tour', webinars and workshops. There will also be a dedicated knowledge-sharing network for small and medium enterprises.

Climate Change

Extreme weather events in 2024 have significantly impacted global food systems and farming practices, posing challenges to food security and agricultural stability. It is expected that climate change will result in an increased frequency and severity of extreme weather events.

It is estimated that food systems as a whole account for nearly one third of greenhouse gas emissions, and that they consume large amounts of natural resources resulting in biodiversity loss.

The European Green Deal

The European Green Deal, launched in 2019, has the aim of making the EU climate neutral (no net emissions of greenhouse gases) by 2050; making Europe the first climate-neutral continent.

The EU's Farm to Fork Strategy is at the heart of the 'European Green Deal' and aims to make food systems fair, healthy and environmentally friendly.

The EU's Farm to Fork Strategy

The EU's Farm to Fork Strategy aims to accelerate the EU's transition to sustainable food systems which should:

- Have a neutral or positive impact on the environment.
- Help to mitigate climate change and adapt to its impacts.
- Reverse the loss of biodiversity.
- Ensure food security, nutrition and public health; making sure that everyone has access to sufficient, safe, nutritious, sustainable food.
- Preserve affordability of food while generating fairer economic returns, fostering competitiveness of the EU supply sector and promote fair trade.

The strategy includes both regulatory and non-regulatory initiatives. It is expected to have multiple impact, including a downward trend in permitted maximum residue levels (MRLs) for contaminants such as pesticides.

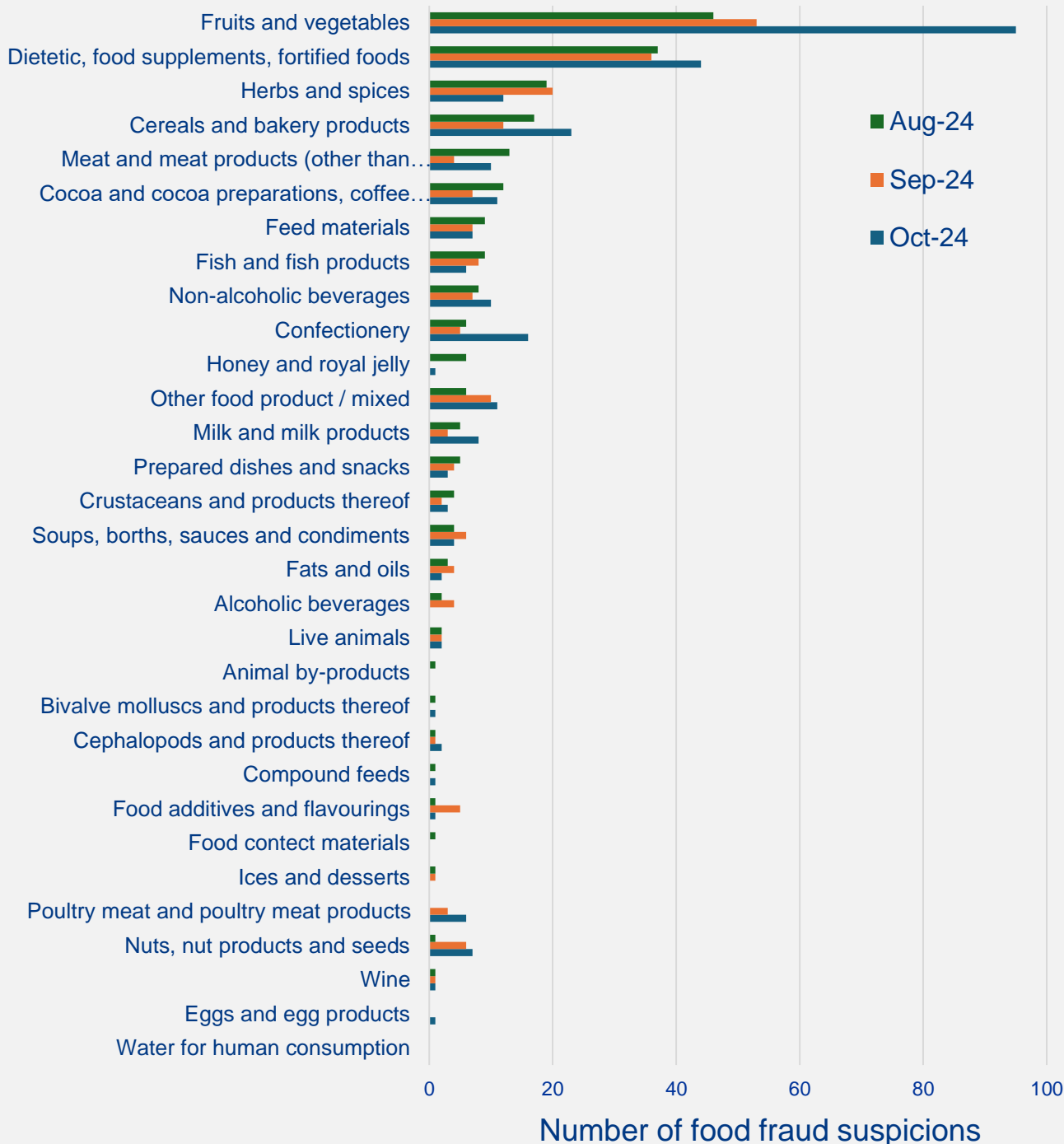
It is, therefore, essential to plan for these changes.



Happy holidays & all the best for 2025

We hope you have enjoyed our 2024 Risk Insights Newsletters. We look forward to providing you with more key insights in the New Year.

Summary of Food Fraud Suspicions (IRASFF) Aug, Sept and Oct 2024





Risk Insights Food Newsletter

The Eurofins Compliance and Risk Management Team can work with you to identify and mitigate risks within your business, whether they be microbiological, contaminants, allergens, pesticides, authenticity (food fraud) or risks to your supply chain such as price changes or climate fluctuations.

We are here to work with you to protect your customers, brand and reputation.



eurofins.co.uk/food



risk@ftuki.eurofins.com



+44 (0) 845 604 6740