



# Combating fraud in the global food supply chain

A report created by Lockton  
in collaboration with Campden BRI

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March 2024  
Whitepaper



## Executive Summary

Food prices have been rising fast recently due to a diverse set of events including the war in Ukraine, disruptions in the global food supply chain, and impacts of climate change on extreme weather events. High prices and volatility in commodities markets are making it more attractive for criminals to pass off cheap, non-compliant or adulterated / counterfeit products as high quality and more costly produce.

Price volatility in the food and drink sector is likely to continue as climate change impacts agricultural output and supply chain disruptions affect availability of core ingredients. The increasing fraud risk requires a review of the processes in place to mitigate the risk to consumers, protect the brand's reputation and avoid any impact on the financial performance of the business.

The following report has been produced by Lockton with contributions from specialist partners, including Campden BRI, the trusted, premier, independent technical partner of choice for the food and drink industry.

The report aims to help businesses in the food and drink industry navigate the current challenging environment with recommendations to reduce the risk of food fraud within the supply chain, and opportunities to protect against any residual risk by transferring it to the insurance market.



## Price hikes attract fraudsters

Prices for food and non-alcoholic beverages in the UK [have risen by 8%](#) in the year to December 2023, according to the latest Consumer Prices Index including owner occupiers' housing costs (CPIH). This was down from a recent high of 19.2% in March 2023, which was the highest annual rate seen for over 45 years. Similar price increases have taken place elsewhere in the world.

Prices have tended higher in the food industry partially because of higher energy costs, but also because of supply and demand imbalances. Climate change is adding volatility to prices for raw material. With key ingredients less readily available and the industry under pressure to limit retail price increases, the global supply chain is currently highly susceptible to food fraud and adulteration.

## The climate change impact

Extreme weather conditions in Europe have, for example, led to rapidly soaring prices of olive oil. Many of the Mediterranean's olive trees have been hit by weather conditions such as droughts and severe hailstorms leading to floods. And in 2023, the region – as well as the whole planet – experienced the [hottest summer on record](#). This has significantly reduced the olive harvest. As a result, prices of Spanish olive oil [rose by 115%](#) between September 2022 and September 2023, according to Mintec, a raw material market forecaster and data analysis firm. Subsequently, the faking of extra virgin olive oil has become widespread in producing countries, prompting Spanish and Italian law enforcement officials to conduct searches in various locations. Around Ciudad Real, Spain, 11 suspects [were apprehended](#) and 12 barrels containing 260 000 litres of adulterated oil were seized in November, 2023.

Similarly, [sugar](#) and [rice](#) prices have [risen by double digits](#) recently due to production disruptions caused in part by the El Niño phenomenon, as well as new trade restrictions and producer country stockpiling amid concerns over potential shortages.

## Swapping suppliers or ingredients

Price rises and/or limited supply are forcing some food and drink manufacturers to look for alternative suppliers or even for alternative ingredients. Such decisions are often made under time pressure and may not allow for a comprehensive quality assessment that includes the inspection of local production facilities or background checks on the suppliers' own supply chain.

New suppliers need to be vetted and onboarded to maintain quality and safety compliance. In addition, using substitute ingredients may require new packaging and a review of product descriptions and allergen warning information. A rushed decision may result in fraudulent, poor quality, and even unsafe food products.

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“Reputational risk always features as a major concern when discussing risks with our food and drink clients. Consumer trust is critical for the sector and a loss of it can be hugely damaging for businesses, especially those with high dependency on a single product or brand. Consumers are becoming more selective and informed as both the accessibility and speed of information increases. This is contributing to a higher severity of food fraud events.”

Luke Withers, UK Food and Drink Industry Leader, Lockton

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## The economic damage

Issues around food fraud have gained increased recognition from the food industry, regulatory authorities, and policymakers in recent years, following prominent criminal cases. Primarily motivated by profit, illegal practices are evidenced across every node of the supply chain and encompass a wide variety of products.

In 2023, the UK's Food Standards Agency [launched](#) a criminal investigation into allegations that a rogue meat supplier falsely labelled huge quantities of foreign pork as British. In addition, the Agency was investigating claims that the firm mixed rotten pork with fresh meat. While the investigation has not yet been completed, it is understood the meat may have ended up in many UK supermarkets. It may also have been included in many items such as ready meals, quiches and sandwiches sold in a number of UK supermarkets, with schools, hospitals, care homes and prisons also indirectly supplied.

Honey is another product making headlines after EU authorities launched an investigation. Honey naturally contains sugars and, according to EU legislation, must remain pure – meaning that it cannot have ingredients added to it. However, an investigation by the European Commission's [Anti-Fraud Office \(OLAF\)](#) and the [Joint Research Centre \(JRC\)](#) revealed that 46% of the 320 samples of imported honey – taken randomly between November 2021 and February 2022 – had been adulterated. Adulteration occurs when ingredients such as water or inexpensive sugar syrups – for example from rice, wheat or sugar beet, are artificially added to increase the volume of honey.

While the risk to human health is considered low, such practices defraud consumers and put honest producers in jeopardy as they face unfair competition from operators who can slash prices thanks to illicit, cheap ingredients. For example, the EU average unit value for imported honey was 2.32 €/kg in 2021, whereas sugar syrups made from rice were at around 0.40 – 0.60 €/kg, according to a [press release by OLAF](#).



The precise economic impact of food fraud is difficult to measure, but it is estimated to cost the food industry globally between [\\$10 billion](#) and [\\$40 billion](#) per year. For businesses caught up in a scandal, it poses a reputational risk and importantly, negatively impacts consumer trust. Some cases, such as the addition of melamine to infant formula in China in 2008, or the adulteration of spices with industrial dyes to enhance colour also have implications for food safety and public health.

The UK's Food Standards Agency (FSA)'s National Food Crime Unit, has identified seven different techniques used by criminals:

- Illegal processing - slaughtering or preparing meat and related products in unapproved premises or using unauthorised techniques
- Misrepresentation - marketing or labelling a product to wrongly portray its quality, safety, origin or freshness
- Waste diversion - illegally diverting food, drink or feed meant for disposal, back into the supply chain
- Substitution - replacing a food or ingredient with another substance that is similar but inferior
- Document fraud - making, using or possessing false documents with the intent to sell or market a fraudulent or substandard product
- Theft - dishonestly obtaining food, drink or feed products to profit from their use or sale
- Adulteration - including a foreign substance which is not on the product's label to lower costs or fake a higher quality.

Certain food categories are more vulnerable to deceptive practices due to complex and globalised supply chains, premium characteristics, or their susceptibility to adulteration. Among these are commodities such as olive oil, honey, seafood, milk and dairy products, and herbs and spices. Common examples of food fraud include the dilution of premium products with inferior substitutes, such as the adulteration of olive oil with less expensive oils, or the misrepresentation of seafood species to obscure lower-value fish. These methods can be difficult to detect, as fraudsters continuously innovate to evade industry and regulatory oversight.

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“Risk transfer solutions, to cater for food fraud and adulteration issues, are available in the specialist product recall insurance market. They are designed to provide balance sheet protection, but also reputational damage mitigation with integrated crisis consultancy and business interruption coverage.”

Freddie Schlesinger, Vice President,  
Product Recall & Reputational Risk, Lockton

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## Case studies

### 1. The 2013 horsemeat scandal

The horsemeat scandal was a food fraud incident that affected the European meat industry. The Food Safety Authority of Ireland tested beef products for the presence of undeclared DNA and found horsemeat and pork. Further investigation revealed widespread substitution of beef for horsemeat across European supply chains and a complex network of suppliers and intermediaries. The findings raised serious concerns about food safety and transparency and led to calls for improved oversight of supply chains to prevent future incidents and restore consumer trust in the food industry. In the UK, the recommendations from the subsequent Elliott Report, a [Review into the Integrity and Assurance of Food Supply Networks](#), led to the creation of the National Food Crime Unit and the Food Industry Intelligence Network (fiin), amongst other initiatives.

#### Insurance commentary

The horsemeat scandal was perceived as a ‘quality’ issue with no real health consequences. The UK’s Food Standards Agency (FSA) and the UK Chief Medical Officer noted that this event had ‘a very low risk that it would cause any harm to health’. This statement essentially precluded coverage in the product contamination insurance world as product contamination insurance policies provide protection against events that pose a health risk to consumers.

Typically, the burden of proof lies with the insured to prove that their product would cause bodily injury or that the product is not fit for consumer welfare by reason of being unsafe. This proof may be through laboratory testing or certification from a regulatory body.

If there had been media outlets alleging that the products affected by the horsemeat scandal were injurious to health, then there could be cover under a trigger called ‘adverse publicity’.

In the absence of an ‘adverse publicity’ event, a product contamination policy would have provided value to the insured by covering consultancy costs. Integrated crisis communication is important in managing stakeholders when management believes that there could be an insured event. Supplier vetting and auditing is one of many functions that ‘pre-incident bursary’ could cover – thus helping to prevent these and similar events from occurring.

### 2. Illegal treatment of tuna with nitrites

Tuna caught for canning loses its red colour when frozen in brine and kept at a warmer temperature than fresh. Fraudsters have been treating the tuna with nitrites and other additives to enhance the colour and appearance of the tuna, enabling them to sell canning-grade tuna as fresh. Illegally treated tuna may contain high amounts of histamine which can cause serious allergic reactions and the formation of carcinogenic substances known as nitrosamines. A long-standing issue, the substitution of fresh tuna for canning grade offers significant economic gain for criminals with an estimated yearly profit [of approximately EUR 200 million](#). Several European enforcement operations have targeted this practice including coordinated action from Europol and Interpol, resulting in the [seizure of tonnes of adulterated product](#) and a reduction in activity.

#### Insurance commentary

If a business is unknowingly sold fraudulently treated tuna that causes adverse health consequences (i.e. allergic reactions or intoxication), then there is likely to be coverage under a product contamination policy.

This would be a prime example of the ‘adulteration’ technique identified by the UK’s National Food Crime Unit (NFCU). However, a key distinction to highlight in a product contamination policy is that this would not be covered under the ‘malicious product tamper’ section of the policy as there is no malice by the supplier intended, and it is purely driven by financial gain.

Malicious product tamper coverage has been around for decades, due to cases like the Tylenol murders back in 1982. However, intentionally impaired ingredients are a more recent phenomenon with more insurers providing a separate limit for this cover entirely – designed for suppliers fraudulently amending a product or documentation for their own economic advantage.

Such coverage could be available in the fraudulently treated tuna case, but the onus would be on the insured to provide evidence through testing that their tuna product would cause bodily harm. The only nuance to be aware of is that some policies have ‘carcinogen’ exclusions, so it would be important to check that a specific policy has a carcinogen writeback providing cover for those listed within the International Agency for Research on Cancer.

### 3. The 2008 melamine milk powder scandal

In 2008, sixteen infants in China’s Gansu Province were [diagnosed with kidney stones](#), all of whom had been fed milk powder. Investigations showed that infant formulas in China had been adulterated with a toxic industrial compound called melamine to boost its apparent protein content. [An estimated 300,000 babies in China fell sick from the contaminated milk](#), and kidney damage led to six fatalities. One of the largest dairy producers in China was initially identified as the chief culprit, but later more Chinese dairy firms became implicated.

As a result of the crisis, China’s government strengthened its regulatory controls for food safety. In June 2009, China promulgated the Food Safety Law, which prohibits any use of unauthorised food additives. The law also led to the establishment of a high-profile central commission to improve inter-state coordination and enforcement of food safety regulation at the national level. In March 2013, China Food and Drug Administration (CFDA) was set up as a ministry-level agency to consolidate authorities in food and drug safety.

#### Insurance commentary

Product contamination policies would have provided coverage for this major event due to the clear and obvious health consequences. Many companies were affected by this particular event leading to a number of insurance market losses.

The contamination event has been costly for many companies. In September 2008, a New Zealand dairy giant that had a 43% stake in Sanlu, the Chinese company at the centre of the scandal, [estimated](#) that the product recall and the anticipated loss of San Lu brand value cost it \$NZ139 million (USD87 million as of 15.1.24).

Further, a Chinese biscuit manufacturer exported melamine contaminated Koala cookies into Europe which caused a major recall. The British Food Standards Agency ordered the biscuits to be pulled from shelves in the UK and the destruction of the packs since they were being marketed to children.

Government recall is an important policy trigger, designed to remove the burden of proof from the insured and onto a regulator (therefore allowing a more specific coverage determination).

Whilst it's highly likely that a few policy triggers would have come into force, the Koala cookies case of 2008 involved a clear regulatory body intervention and would therefore have constituted a government recall event. We have seen instances whereby regulators have taken the view to classify a recall early in the interest of protecting consumer welfare – this even goes as far as having products which may actually be safe to consume but the risk is too great to take.

## Emerging trends in food fraud

Many claims made about food from sustainable supply chains have the potential to be misleading. Recently a [study by the UK government](#) found that 40 percent of such claims were problematic. With more and more emphasis on sustainable, nature-inclusive, biodiversity-positive food productions, it is expected that we will gradually see more fraud cases emerging in this area.

Another important trend in food fraud in the past few years is the remarkable effect of global events disturbing food production and transport as well as the market prices of foods and ingredients. For instance, the COVID-19 pandemic affected the vulnerability to food fraud enormously. According to a scientific study, the pandemic increased the effects of economic and behavioural drivers and at the same time, [reduced the level of counteracting control in the chains](#). Similar effects were seen due to the war in Ukraine and more recently in the Middle East.

Counterfeiting is a major risk for high end products. Vodka and other types of alcohol have been counterfeited in the last few years with factories raided by police in Pakistan and Russia, for example. Such cases can have severe consequences due to the potential health impact and knock-on effects on a company's brand and reputation. Fake alcohol is dangerous because it is often produced using toxic chemicals that are not safe to drink.

## Risk mitigation

Due to the wake-up call from the horsemeat scandal and the vulnerabilities highlighted in our food system by recent wars and the COVID-19 pandemic, the combat against food fraud has been reinforced over the past years. The awareness of food fraud has considerably increased among food business operators and regulators in the last decade. The subsequent [Global Food Safety Initiative \(GFSI\) white paper](#) resulted in implementation of food fraud vulnerability assessments and food fraud control measures into the GFSI associated food safety management schemes worldwide. Therefore, many food business operators have included these measures to protect themselves to meet the schemes' requirements and are significantly better geared to combat food fraud than a decade ago. The tools to combat food fraud have seen great developments, too.

The National Food Crime Unit (NFCU) has developed a [Food Fraud Resilience Self-Assessment Tool](#) that provides support, guidance, and advice to food businesses on fraud and food fraud.

Similarly, the Scottish Food Crime and Incidents Unit (SFCIU) has developed a [Food Crime Risk Profiling Tool](#) to support food business operators to understand their risk from food crime and the measures they can take to reduce this risk.

Some businesses have started monitoring recruitment platforms such as Indeed and Glassdoor to check if there are any negative comments suggesting irregular or suspicious activities taking place in the business, particularly in connection with suppliers of high risk or critical products.

Auditors are also requesting to review CCTV footage during unannounced audits from the point they turned up on site to see if any unusual activities took place after the news spread that they were on site. Another common technique applied in investigations is measuring mass balance. This entails tracking the quantity of each ingredient throughout the production process. This process ensures that inputs match the outputs, guaranteeing product consistency and revealing any inconsistencies resulting from dilution or ingredient substitution.

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“Building supply chain resilience to food crime will better prepare businesses to identify threats in advance, prepare for them, and prevent disruption. It will even help them deal with unexpected supply chain challenges more effectively. A lot of tools and support, including from Campden BRI, are available to help fight against food crime, implement resilience frameworks, develop greater agility, prepare for supply chain challenges, and drive continuous improvements within operations.”

Bertrand Emond, Culture Excellence Lead, Campden BRI

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## Key measures

- Supplier controls – i.e. vendor approval programmes with auditing procedures to ensure that supplied products are at the high standards expected
- Contracts – strong contracts with rights of recourse (protecting the business against supply chain issues)
- Testing – incoming ingredient/supplied product testing (microbiological, X-Ray etc.) to ensure the Certificates of Analysis (COAs) are valid and not fraudulent

Since systems and processes are only as good as the people involved in implementing them in practice every day, a strong food safety culture - that drives and sustains positive behaviours across the whole food system - is critical to [ensure the success of the controls that you have in place](#) – and, perhaps most importantly, for situations to be handled well when things go wrong. Evidence of strong risk controls and culture is also likely to enable the business to secure good terms for product recall insurance cover.

## Insurance solutions:

The coverage under a product contamination policy can include:

- 1st and 3rd party recall costs
- Replacement costs
- Consultancy costs (inclusive or risk management bursaries)
- Extra expenses
- Business interruption
- Third party financial loss
- Rehabilitation costs

Policies do not cover civil lawsuits and litigation or punitive damages. These costs are explicitly excluded from policies. Instead, the focus is on first-party balance sheet protection with third-party extensions.

## Key insurance considerations

- Allergen or other safety issues are considered by regulatory authorities to be highly dangerous in the food sector. These are likely to trigger recall policies (whether they are through mislabelling, accidental contamination, or intentional means for economic gain).
- When a recall event does not pose a bodily injury threat, it becomes more challenging to find coverage, particularly in the ‘accidental contamination’ trigger as the burden of proof lies with the insured. There are, however, triggers like Government Recall and Adverse Publicity which do extend this beyond a standard Accidental Contamination (ACI) trigger. These can be potential avenues for finding coverage.
- Counterfeiting endorsements are not common practice within the marketplace, but Lockton has created these for some clients where the need had been expressed. They typically have limited cover, i.e. consultancy and recall costs only.
- Pre-mitigation bursaries can assist with some of the risk mitigation measures, including tightening up vendor approval programmes. These typically range between 5%-10% of the net premium.

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