

FOOD FRAUD – THE TIP OF THE ICEBERG?

Food fraud and adulteration for financial gain has hit the headlines recently. Horsemeat substituted for beef in Europe, seafood species substitution in the USA, and suspected organic food fraud in Germany – the spotlight has fallen on the veracity and transparency of global food supply chains.

Food fraud is big business and not new. Ancient Rome and Athens had laws regarding the adulteration of wines, and as early as the 13th century Europe introduced food laws to protect consumers from unscrupulous traders. The precise scale of economically motivated food adulteration in the 21st century is not clear, but it is big business.

HORSEMEAT MASQUERADING AS BEEF

Meat substitution on an industrial scale was identified across Europe in early 2013, affecting 13 countries and impacting many trusted manufacturing brands and household name retailers. Horsemeat legally entered the food supply chain, and between the slaughterhouse and food production premises it was re-labelled as beef. Consequently, a broad range of processed foods (ready meals, beef burgers) were contaminated with horsemeat. Some products showed only trace levels of contamination, but others were found to contain a significant proportion of horsemeat.

Consumer faith in the supply chain was damaged. However, the episode also exposed the length and complexity of the food supply chain, something consumers were not really aware of.

SUSPICIONS OF ORGANIC EGG FRAUD

In Germany and the Netherlands, 186 poultry farms have been investigated for fraud involving organic eggs. The Dutch poultry farms are suspected of supplying laying hens to the German poultry farms using a double book-keeping system and fake bills. This system allegedly allowed the German poultry farms to label eggs as organic, when they in fact kept too many chickens not raised or held according to organic specifications.



WIDESPREAD SEAFOOD SUBSTITUTION

Consumers are regularly urged to include more seafood in their diet, but a recent study by Oceana, revealed that 33% of 1,215 samples analysed in the USA were mislabelled. Incorrect labelling can pose a risk to human health. Swapping one species for another may open the door to potentially harmful toxins being consumed and making people ill.

Oceana reported that they found seafood fraud everywhere they tested. Of the most commonly collected types of fish, snapper and tuna had the highest mislabelling rates across the country at 87 and 59 per cent, respectively. Whilst 44 per cent of all the retail outlets visited sold mislabelled fish, sushi venues had the worst level of selling mislabelled fish in 74 per cent of the tested restaurants, followed by other restaurants at 38 per cent and then grocery stores at 18 per cent.

ANCIENT ISSUE

The temptation to increase profits by selling adulterated food and beverages is nothing new. In ancient Rome and Greece, traders would add colourings and flavours to wines to make them more saleable. Due to ongoing fraud, in the 13th century, France, Germany and England introduced the first food regulations to protect their populations. In 1516 the German beer purity law was introduced which is still in use today. Historically, food adulteration has often been detrimental to human health. In England, unscrupulous 18th and 19th century bakers used a variety of 'additives' to whiten and increase the weight of bread products. Food safety was of minimal concern as poisonous additives including alum, chalk, plaster of Paris, pipe clay and even sawdust were added to this everyday staple. During the same period, beers across Europe were

regularly ‘improved’ with the addition of bitter tasting substances, including strychnine, to help brewers save on the cost of hops.

Individual scientists who were working against powerful commercial interests championed food safety in the 18th and 19th century. In 1820 Germany’s Frederick Carl Accum published a book exposing the practices and effects of food adulterations. Dr John Postgate, an English chemist and medical doctor, who spent more than 20 years campaigning for food safety legislation, continued to promote the cause after Accum’s death. Postgate was the first to champion not only a ban on the adulteration of food, but also the introduction of organised detection and monitoring. As a result, the first Food Adulteration Act was passed in the UK in 1860. This was a milestone for consumer safety, but just the first step towards today’s food and consumer safety culture.

LABELLING RESPONSIBILITIES

The recent food fraud crises were an eye-opener for industry, regulators and consumers. All the evidence points towards vulnerability to fraudulent activity in the current highly sophisticated food systems’ regulatory frameworks.

EC Directive 2000/13 is clear about the food industry’s labelling responsibilities:

- The labelling and methods used should not mislead the consumer.
- All ingredients must be mentioned on the label of pre-packaged foodstuffs.
- [Labelling] must also indicate the animal species from which the meat originates directly on the package or on a label attached thereto.

(See figure 1 for more legislative details)

Mislabelling is a global issue. In addition to the above-mentioned incidents, South Africa had also been hit by a mislabelling scandal. A study says that the country has seen donkey, water buffalo and goat meat sold as burgers and sausages.

However, the issue is not only about species substitution, but also the

adulteration of ingredients, and additives, as well as organic and geographical origin claims.

Species substitution (meat and seafood) has proven widespread, and the industry needs to be aware that the line between the simple mislabelling of products and food safety risks is a thin one. Across Europe, mislabelling of horsemeat as beef rapidly became a food safety concern, as products were suspected to contain the banned veterinary drug phenylbutazone.

DEFAUDING THE CUSTOMER

There is potential to increase profit by supplying and selling sub-standard or substituted products. However, the cost to the industry, brands and long term business sustainability is not measurable.

Food fraud is the deliberate substitution, addition, tampering or misrepresentation of food, food ingredients, food packaging or false or misleading statements made about a product for economic gain. Often considered to be mostly an economic issue, the substitution of ingredients, and recent examples of failure within the supply chain to deliver the goods ordered, are raising questions about food safety.

Any adulteration to the stated ingredients of a food product by substitution, dilution or modification means the consumer

does not know what they are buying and moreover, the product has not been subjected to the same rigorous food safety testing regime as legitimate unadulterated products. Fraudulent activity is intended to evade detection, so only the criminal knows what’s really in the adulterated product. For consumer safety this is the worst scenario, as the criminal is then the only person with the product knowledge, but not necessarily the expertise to assess whether the changes pose a risk to human health.

TESTING, CERTIFICATION AND VERIFICATION

Evidence suggests that recent revelations are only the tip of the iceberg. Partnering with an independent third party testing, certification and verification supplier, such as SGS, enables actors across the food supply chain to verify food safety management systems and test materials at any and/or every stage.

For further information please visit our website www.foodsafety.sgs.com.

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1. EU Food Labelling Requirements		
LABELLING REQUIREMENTS	DIRECTLY APPLICABLE LEGISLATION	IMPLEMENTING DIRECTIVE
General labelling requirements	[from 12/2014] Regulation (EC) 1169/2011	Directive 2000/13/EC
Allergen labelling		Directive 2000/13/EC
Genetically modified food labelling	Regulation (EC) 1829/2003	
Gluten-free labelling	Regulation (EC) 41/2009	
Lot marking		Directive 89/396/EEC
Nutrition labelling	[from 12/2014] Regulation (EC) 1169/2011	Directive 90/496/EEC
Organic labelling	Regulation (EC) 834/2007 Regulation (EC) 889/2008 Regulation (EC) 1235/2008	
Packaging gas, sweeteners and liquorice		Directive 2008/5/EC
Phytosterols and Phytostanols	Regulation (EC) 608/2004	
Quinine and caffeine		Directive 2002/67/EC