

The Growing Global Epidemic of Food Fraud

NSF International

Recent news headlines regarding the evidence of horsemeat in beef products has drawn worldwide attention to the growing problem of food fraud.

Instances of food fraud are on the increase, occurring on a global scale, and estimated to cost the world economy \$49 billion (US) annually, a figure that is expected to rise.

In fact, the horsemeat scandal represents only a small segment of a much larger crisis that encompasses the bulking-up, watering-down, substitution, mislabelling and otherwise misrepresentation of the contents of the food we eat. It's equally unsettling that tampering with the food chain likely has occurred, either undetected or unreported, over many years. Why? Because criminals worldwide have identified opportunities for significant financial gain by exploiting an intricate, largely hidden system of food supply and distribution networks.

Because of its complexity and worldwide reach, reining in food fraud will require a collaborative effort between industry, government, and government agencies. It will also demand a dedicated effort across the food supply chain, from producers and distributors to consumers – a task easier said than done.

NSF International, a globally recognised leader in food and beverage safety systems, has assembled a world class group of expert food practitioners, regulators, scientists and academics to define the scope of the food fraud problem and provide guidelines for businesses to put in place the practical measures required to protect their businesses from food fraud in its many manifestations. The members of the NSF Consulting Group will share the tools and resources necessary to protect consumers, assure brand integrity, and set new best practice standards in food safety.

Food Fraud, Historically and Globally

Food fraud originated as a money-making opportunity, a way to extend a food's primary ingredients for added profit. As early as the 17th century governments started to introduce food purity laws to address abuses that included watered-down milk and the use of chalk as a filler in bread. These practices and others soon raised concerns about food safety.

Through the years, companies have built their brands and market share based on a reputation for quality and safety. Simultaneously, markets have grown from local to

global, and supply chains became more complex. This has opened the door to food fraud on a larger scale. Today, a growing number of leading manufacturers and retailers, whether directly engaged with food fraud or not, suffer its consequences through sourcing and supply challenges, a drop in market share, mounting consumer distrust, and the prospect of years of brand rebuilding. Consumers are demanding increased legislative protections and food companies, whether guilty or innocent, are being challenged to respond or risk further damage to their reputation.

As suggested, much of the trouble is traced to the global scale of today's food industry. "What we're seeing today is an extraordinary expansion of the food supply chain," says David Edwards, managing director of the NSF Consulting Group. Rather than supply "chain," Edwards believes it is more accurately described as a supply "network," due to both its global nature and the fact that most food today no longer follows a straight line from source to fork.

This year's horsemeat scandal provides a perfect example. In this instance, the meat product eventually substituted for beef travelled back and forth between several European countries over time, across a network that made it difficult if not impossible to track and trace. Complex supply networks by their very nature favour crime and hinder detection.

French authorities ultimately identified a French meat wholesaler as the prime suspect in Europe's horsemeat controversy. The government's consumer affairs minister determined that fraudulent meat sales had stretched over several months, across 13 countries and 28 companies. Meanwhile, Britain's food regulator reported that six horse carcasses tested positive for an equine painkiller that may have entered the human food chain in France. Almost simultaneously, arrests were made on suspicion of fraud at two meat plants in Wales.

These incidences and others have brought attention to how little the average consumer understands the complexities of modern food processing and delivery. Even in countries where horsemeat is considered food and mislabelling is the greater issue, consumers' right to know what's in their food often is undermined by an unscrupulous few.

Horsemeat is not the only food scandal to draw headlines, and the European Union is not alone in facing a crisis of consumer confidence. The U.S. seafood industry likewise has suffered from its own version of a bait-and-switch outrage.

Investigative reporters from the *Boston Globe* found that fish served in area restaurants, even good ones, was incorrectly identified about half the time, sometimes deliberately. The reporters uncovered instances in which fish labelled as "fresh" was in fact frozen, and lower quality fish was mislabelled as a more desirable species. Similar

investigations carried on by public interest groups from Florida to California reported comparable instances of mislabelling, including fish presented as “local” that in fact came from distant waters.

The seafood industry deals with its own unique set of circumstances in confronting fraud. In some cases, correct labelling literally is “lost in translation”. Sushi restaurants in particular face the confusion associated with packaging labels written in other languages that are incorrectly translated into English. Diners with specific seafood allergies or pregnant women trying to avoid mercury-tainted fish may be at risk as a consequence.

To quote one industry blogger, “No wonder ‘fishy’ translates as ‘suspicious’.”

Regulation of the U.S. fishing industry is spread across four agencies, specifically the USDA for marketing, the EPA for sport and recreation fishing, the FDA for fish safety, and the NOAA (National Oceanic and Atmospheric Administration) for ocean fisheries. As a result, a variety of specific regulatory responsibilities fall between the cracks. Efforts are underway to tighten regulation, including the introduction of a new bill known as the Safety and Fraud Enforcement for Seafood Act, which is designed to track fish from the vessel to the consumer.

Food Fraud Trends and Possible Remedies

Industry trends influencing the global rise in food fraud include:

- Globalisation of the supply chain making detection harder and insertion/adulteration easier.
- Organised crime – Global criminal networks take advantage of lax industry regulation and supply chain weaknesses.
- Big-ticket items – Criminals use profits from big “industries”, including drugs and cyber crime, to fund sophisticated techniques of evasion, such as websites that are beyond the reach of law enforcement.
- Cost-cutting – The food industry is under constant pressure to keep prices down.
- Open borders – There are no legislative requirements to control goods moving between European Union countries.
- It is clear that a more robust and collaborative fraud detection system is needed – and one which can be truly predictive rather than reactive after fraud has already taken place.

What are the remedies?

The immediate response has been a huge programme of product inspections and testing. In the short term this is necessary but it is expensive and it is not possible to test everything. However it is clear that testing regimes and product audits will be more rigorous going forward.

- Improved systems – Systems to prevent cross contamination in manufacturing and to ensure correct labelling are already in place but these are being reviewed and tightened up. NSF has itself introduced a new standard the ***NSF Integrity and Traceability Audit Standard (IAT)*** which provides a rigorous assessment of a site's ability to manufacture products to the agreed specification and ensures that suitably robust controls are in place to prevent possible cross-contamination of non-specified ingredients.
- Shorter supply chains – Some of the major retailers are looking seriously at limiting their supply networks to more local areas. How feasible this strategy is in a global market remains an open question. An unintended consequence of it could be to create further risk. For example, if the big players buy up all local supply, smaller businesses could be forced to source supply from further afield – and they do not have the same level of resource to verify the product.
- Developing legislative action – As more incidences occur, the relevant case law is also developing, to tighten up loopholes and define the precise nature of the criminality which will lead to a rising number of prosecutions in such cases. Company directors are more likely to be held personally liable for their products' health and safety.

As the dust settles and a longer term strategic approach can be developed by Government and industry, it is likely that the key focus will be on:

- The establishment of an acceptable standard of product testing and analysis which sets out, what, where and how often. Already the UK FSA is starting to look at this.
- More transparency and data sharing between national Governments and agencies to create global database of supply movements, incidents and alerts.
- Increased industry data-sharing to the same end, and much closer collaboration between Government and the industry.

- The rapid development of technologies and software tools to facilitate vastly improved analysis that can quickly pinpoint locations and trends in transgressions. Already the network analysis tools being developed by Professor Declan Naughton at Kingston University in the UK can data-mine the RASFF database in seconds to show the transgression and detection rates (amongst many other things) at any point or between related supply nodes in the globe and over any chosen time period.

Who Profits? Who Suffers? Who's Responsible?

Who benefits from food fraud? Anyone involved with fraudulent activity, from purveyors to distributors to marketers who mark up or mislabel a product for added profit. Restaurateurs and grocers who operate with no concerns for product traceability are equally culpable. Criminals in search of big rewards have identified the food industry as an easy mark.

Consumers are not alone in suffering the consequences of food fraud. Smaller locally based farmers, ranchers and fishermen operating legitimately may face an array of confusing regulations across jurisdictions, competition from larger companies and the intrusion of foreign imports. Restaurants and chefs can become objects of ridicule and lost business when anger extends beyond the actual perpetrators. Ultimately, local economies and even industries can suffer.

Who should assume responsibility for detecting and attacking food fraud? Government? The food industry? Ultimately, both have a role to play. Government has the ability to tap the massive databases generated by the industry, to data-mine and analyse, and to identify where the opportunities for fraud exist. In turn, the food industry must drive through, and track, best practices in food safety and quality across its supply networks. Inspections must be ramped-up rather than cut back, as a direct correlation has been found between frequency of inspections and instances of fraud identified. And industry alarms should go off whenever a commodity suddenly floods the market at a too-good-to-be-true price.

The Search for Solutions

Food fraud demands the active engagement of every segment of the industry.

Food experts agree the need exists for more reliable data, improved data analysis, new tools and technologies, and a greater understanding of the underlying scientific, economic and cultural issues that enable food fraud. Some of these advancements will come from within the industry, while others will likely be adapted from other disciplines.

On a more fundamental level, David Edwards of the NSF Consulting Group advises anyone directly involved with combating food fraud to “think like a criminal” and answer four key questions, two of which he was prepared to reveal:

1. How profitable is a food substitution? Those inclined to fraudulent practices will seek out high-dollar opportunities.
2. What is the opportunity? Often this can be closely linked to price differential. For example, the horsemeat scandal may well have its roots in the sudden glut of horsemeat on the market in Romania after the Italian market for live horsemeat was no longer open to them, while in parallel the recession in Ireland led to many unwanted horses on the market. Therefore horsemeat became very cheap and a lot of product was available which could fairly easily be passed off as beef. Another scenario may be that if government inspections are reduced to save money an opportunity arises for more criminal activity in light of less likely detection. Changes in technology also play a role, for example the advent of refrigeration has enabled storage and movement of perishable goods over long distances while passing through many different hands.

One solution is for manufacturers and retailers to operate in smaller, more robust networks. While it represents a more expensive solution, companies that have moved to this model by and large have avoided the food fraud problem.

Food retailers and brands must also take a more active role in eliminating fraud. Pushing responsibility down the supply chain and declaring, “We’re victims, too” is no longer acceptable.

Ultimately, some of the responsibility falls to consumers to remain vigilant and speak up when they witness what they believe to be fraudulent practices.

NSF Report Spotlights Abuses

The NSF Consulting Group is developing a comprehensive report on food fraud for release in the second quarter of 2013

“Global Food Fraud: Current Knowledge and Legal Liabilities, Expert Learnings and Preventive Tools for the Industry” contains previously unpublished information including how, why and where food fraud occurs, identifying primary pressure points and exposures. The report also looks at legal sanctions, corporate and individual responsibilities and potential exposure to prosecution. Additionally, it provides the tools to detect fraud in the supply chain and mitigate its effects, together with short, medium and longer term action plans.

“Global Food Fraud” results from the collaboration of a working group of nine internationally recognised academics and expert practitioners in the field. It can be tailored to specific food industry sectors and company requirements.

To view a presentation by Professor Declan Naughton of Kingston University about applications of new network analysis tools to detect food fraud go to:

<http://vimeo.com/nsfinternational/declan>

For more information or to reserve your Global Food Fraud report, please contact

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