



**A Food Safety  
Leader's Guide to  
Food Authenticity**

**Food Authenticity**



2 billion people

around the world have access to quality medicines, dietary supplements and food as a result of our standards, advocacy and education

# A Food Safety Leader's Guide to Food Authenticity

## Introduction

Ensuring the safety and integrity of food products is important to ensure public health and all food industry participants—manufacturers, farmers, regulators, retailers, standards organizations, distributors, etc.—share the responsibility to safeguard public health. Such efforts can minimize organizational enterprise risk, and new regulations formally require industry to take a more active role, risking fines and penalties if they fail to do so. In this article, we discuss the food authenticity landscape and share how some best-in-class food companies are proactively reducing the risk of food fraud across their product portfolios. We also highlight how regulatory changes and other trends are helping to increase the safety of the global food supply.

### The importance of food authenticity and its direct connection to food safety

Consumers expect and deserve access to safe food that is free of harmful contaminants, but food safety incidents are still common in every country. Exposure to unsafe food can cause significant harm to public health, even death in some cases, and decreases consumer confidence. Studies show that consumer concern regarding food safety is increasing. In the 2012 TÜV SÜD Safety Gauge survey of consumers across the U.S., U.K., China, India and Japan, 67 percent of respondents reported that they believe food safety is “very important,” and it is expected to increase in the future.<sup>(1)</sup>

Many types of incidents can threaten food safety, and these typically are classified into three categories: unintentional adulteration with unintended harm, intentional adulteration for economic benefit (food fraud) and adulteration with the intent to cause harm.<sup>(2)</sup> Here, we use the term “food fraud” to refer to the intentional misrepresentation of the true contents of a food or food ingredient, also called economically motivated adulteration of food.

### Food fraud: an increasing threat with high costs

The threat of food fraud is of particular concern to the food industry because the increasing complexity of the global food supply chain creates numerous opportunities for fraudsters to take advantage without being caught.<sup>(3)</sup> Food fraud acts are diverse, ranging from mislabeling lower-quality fish as a more desirable species to substituting horse meat for beef, or selling spices with added carcinogenic industrial dyes to enhance the color.

The impacts of food fraud on the food industry are significant: the Grocery Manufacturers Association estimates that food fraud costs food manufacturers about US\$10-15 billion per year globally.<sup>(4)</sup> If a manufacturer unknowingly incorporates a fraudulent ingredient into a food product and must conduct a recall of the finished product, the cost to the manufacturer goes up significantly compared with discarding the fraudulent ingredient.<sup>(2)</sup> A single product recall from food fraud can cost a company 2 to 15 percent of its annual revenues,<sup>(4)</sup> and that is not counting the negative impact on the company's brand reputation. Often, many years after a recall, consumers still associate the company's name with the safety incident and bad publicity, instead of recognizing advances the company has made to improve its product safety.

## The food authenticity landscape

### Complexity of the global supply chain

Thanks to the global food supply chain, consumers have year-round access to imported fresh foods that are often out of season locally. However, this access comes at a price: the increasing complexity and volume of the food supply chain make it more challenging to ensure food safety. “One of the biggest challenges I see nowadays is the globalization in the food trade. The supply chain is becoming more and more complex, and we have to stay up-to-date on all of the issues that might occur. It's easy to get this information, but we can quickly become overwhelmed,” explained Anal Dave, quality manager at The Original Cakerie, in our recent interview with him.

Foods imported into the U.S. that are regulated by the U.S. Food and Drug Administration (FDA) are handled by over 212,000 different foreign facilities.<sup>(5)</sup> This demonstrates the magnitude of the FDA's challenge in ensuring that products have been properly manufactured, distributed and stored. Also, the high number of sellers, distributors and intermediaries means that many individuals are unaware of what the upstream and downstream players are doing. Thus, it can be extremely difficult to keep track of all relevant information and to be aware of where things might go wrong. This decreased transparency hinders traceability efforts and increases the risk that contaminants might be introduced. And because many of these key players are spread out across different countries, there is the added challenge of understanding the various regulatory requirements.

## Reporting and regulation

Initiatives aimed at improving food safety are driving food producers and suppliers to look closely at their own supply chains to assess potential vulnerabilities and develop risk mitigation plans to increase their protection. The Global Food Safety Initiative (GFSI) is an industry-driven collaboration started in 2000 in response to several highly publicized food safety incidents. Its mission is to provide continuous improvement in food safety management systems to ensure confidence in the delivery of safe food to consumers worldwide. To achieve this, GFSI benchmarks food safety certification programs, officially recognizing those that meet their requirements. This process harmonizes food safety across international borders and builds trust in the global supply chain. Food manufacturers and suppliers can be audited to ensure they meet the requirements of GFSI-recognized food safety certification programs. The latest version of GFSI's Benchmarking Requirements was released in February 2017 and includes new requirements specifically focused on fighting food fraud.<sup>(6)</sup> Companies must comply with these new rules to keep or receive certification by a GFSI-approved certification program. Now, unannounced audits and more transparency and objectivity in the benchmarking process aim to increase safety.

The FDA Food Safety Modernization Act (FSMA) became law in 2011 with the goal of increasing the safety of the U.S. food supply. Since its enactment, companies have been working to comply. Companies must proactively address food safety from both a preventive and a responsive perspective. The FSMA Preventive Controls for Human Food rule and Animal Food rule specifically require facilities to implement food safety plans that analyze possible hazards, including those resulting from the introduction of adulterants for economically motivated reasons, and to implement preventive controls where applicable. Under FSMA, food facilities will be inspected based on their risk, with high-risk domestic facilities facing mandatory inspections on a defined schedule. Other countries around the world have food safety laws specific to food fraud.

## Food authenticity in practice

### Characteristics of a best-in-class manufacturer or producer

So how do the best-in-class food companies address the food fraud issue? They are skilled at identifying and characterizing risks, and they have been proactively working to reduce the risk of food fraud incidents with their products, even before the regulatory requirements are in effect. These companies are actively focusing on developing systems to prevent food fraud incidents. "Instead of waiting for the regulators to come tell us what to do, we look at the trends

and project where they are going and develop systems that help us be compliant, protect our brand and create safe and high-quality products for our customers," says Dave.

These top companies push the quality control boundaries even higher and often insist that their suppliers meet or exceed regulatory requirements. They develop comprehensive purchasing agreements and hold their suppliers accountable for ingredient quality, and if an issue arises, they communicate openly and work together to develop solutions, strengthening the buyer-supplier relationship. Angela Echols from Bay State Milling Company explains, "We've had some incidents where there was a potential food quality issue, and we stepped up and talked to our customers about it ahead of time. They were very impressed with us being so transparent. It makes the relationship with the customers a lot better in the long run."

Many food manufacturers reduce their risk by keeping their supply chains short and working with only trusted suppliers. This strategy supports quality control and ingredient traceability, but it is not always possible, and forging relationships with new or far-away suppliers is often inevitable. Building a strong relationship and developing trust can take a long time. Companies often try to reduce their risk during this time by requiring suppliers to hold a GFSI-recognized certification or—for low-risk ingredients—accepting another third-party certification.

### Developing processes to ensure food authenticity

Dave explains that his company has put a lot of resources into developing thorough vulnerability assessments to identify potential weaknesses in ingredient sourcing that could be at risk of food fraud, and it regularly updates these assessments as new information becomes available. Based on the vulnerabilities, it developed risk mitigation processes that allow it to anticipate and take preventive measures against such incidents. Furthermore, it has already considered various worst-case scenario events and prepared detailed response plans so it can react quickly and responsibly, should the need ever arise.

Regularly monitoring food fraud incidents<sup>(7)</sup> using resources such as the USP Food Fraud Database is an integral part of the process. If a company finds a reason to be suspicious of a particular ingredient, for example, due to a history of economically motivated adulteration, it will likely request certificates of authenticity and testing to ensure the ingredient quality and authenticity. John Bojak, regional food safety manager at Ingredion, Incorporated, says, "The Food Fraud Database is a valuable tool to assist in the evaluation of our ingredients and raw materials for historical incidents

of food fraud. The database is also a vital component in supporting our vulnerability assessments."

Along with monitoring food fraud incidents, these companies also have robust quality control testing protocols in place for raw materials and finished products. These protocols, which often include the use of public testing standards, help companies identify quality problems, including food fraud, before suspect products reach the consumer. By comparing food ingredients to a public standard intended to define the quality and purity (and ensure safety) of the ingredients, food formulators can confirm the authenticity and even functionality of raw materials before using them in food production. Public documentary standards such as those available from USP in the *Food Chemicals Codex (FCC)*, along with associated physical reference standards, are developed and approved by independent scientific experts and can be used to define the chemical and physical composition of quality food ingredients. Standards with orthogonal identification tests and specifications can also be helpful in detecting adulterated food ingredients.

These best-in-class companies also stay on top of quality issues by maintaining close contact with regulatory bodies and readily accepting support that helps them improve food safety. Plus, they often employ methodologies, such as Six Sigma™ and Lean Management™, to develop strategies for producing high-quality products with the least waste and minimum cost.

## Industry trends

### Consumer perceptions and demands

Food companies must prioritize food safety to meet their customers' changing perceptions and increasing demands. Over one-third of surveyed consumers report that food safety is the most important or second most important criterion influencing their food purchasing decisions.<sup>(1)</sup> Their perceptions of safety are based on various factors, including the type of food, which country it comes from and how it makes its way to the consumer. They are also aware of food safety labels and believe that they ensure a food's safety. They are more likely to buy products with labels indicating food safety standards have been met and will even pay a premium price for products with labels indicating third-party safety verification.<sup>(1)</sup> Consumers also expect that the companies producing their trusted foods perform regular inspections, testing and audits to ensure the safety of their products.

As food authenticity becomes more important, consumers are equipping themselves with the knowledge to make safer food choices. They are demanding more product transparency

and easy access to information about food ingredients. Tools such as the Grocery Manufacturers Association's QR code-based SmartLabel™ have been developed in response to these expectations and provide consumers with information that may be helpful in evaluating product safety, such as allergen content, ingredient sourcing data, third-party certifications, advisories, and safe handling instructions.<sup>(8)</sup>

### Food fraud forensics

Robust testing technologies and public standards are becoming more advanced and are making it easier to authenticate food ingredients. Additionally, technologies such as blockchain have the potential to enhance traceability by creating secure records of a food product's complete path from farm to table.<sup>(9)</sup> While these methods will certainly prove indispensable in the fight against food fraud, they will make the biggest impact in conjunction with active vulnerability assessments and mitigation procedures.

### Keeping up with more stringent regulations

Since manufacturers and suppliers are facing stricter food safety regulations both in the U.S. and abroad, they must now increase their efforts to understand and comply with the various requirements. Echols explains, "The quality regulations are not going away. They're just getting more stringent, so we are putting a lot of our focus in this area." Dave recommends that companies start working right away to get a step ahead of the regulations. "The threat of food fraud is real. If you don't already have a food fraud mitigation plan in place, get on board and establish one. Don't just sit back and wait for the regulators to enforce these policies." Bojak echoes this advice: "It's in your best interest to be able to defend your company's food safety systems."

## Conclusion

These days everyone in the food manufacturing industry is facing increasing challenges in ensuring the safety and integrity of their products and minimizing the chance of food fraud. Consumers are demanding it, good food manufacturers are demanding it and now so are new regulations. It is no longer acceptable to simply wait and respond to a food safety incident after it has happened. Industry players must proactively develop vulnerability assessments and risk mitigation plans to ensure the quality and authenticity of the ingredients they use. Failure to do so can lead to high fines, imprisonment, loss of customers and revenues and long-lasting damage to a company's brand.

**Additional resources**

USP Food Fraud Database:  
<https://www.foodfraud.org>

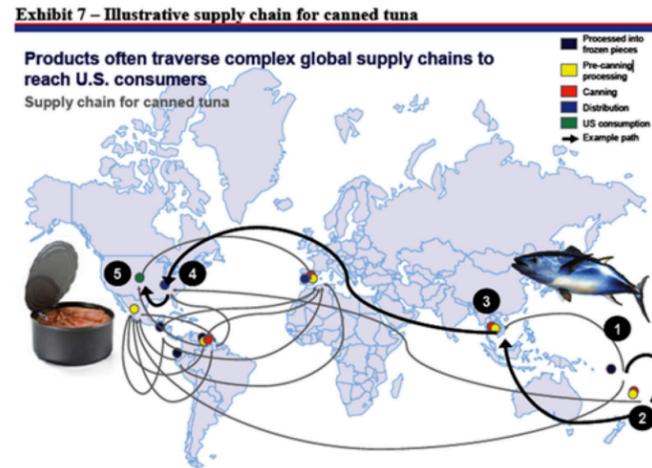
Food Fraud Mitigation Guidance:  
<http://www.usp.org/foods/food-fraud-mitigation-services>

FDA Food Safety Modernization Act:  
<https://www.fda.gov/food/guidanceregulation/fsma>

Global Food Safety Initiative:  
<http://www.mygfsi.com>

**The complexity of the global food supply chain**

This illustration<sup>(10)</sup> demonstrates the complexity of the supply chain for a common product, canned tuna. Fish caught in East Asia are subject to a series of processing and distribution steps on several different continents before the end product is finally available to U.S. consumers.



*The identification of specific companies, products, and programs in this paper does not imply approval, endorsement, or certification by USP thereof. All product names, logos, and brands are property of their respective owners.*

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