

Food Fraud in the Agri-chain

Food fraud occurs when a food supplier intentionally deceives its customers about the quality and contents of the foods they are purchasing. Economically motivated adulteration of food and food fraud can be a serious issue for food safety: the case of melamine in milk led to over 300 000 people becoming ill (BCC, 2010), while the toxic olive oil syndrome resulting from aniline in olive oil led to approximately 300 deaths shortly after the onset of the disease and to a larger number developed chronic disease (Gelpi, 2002). Table 1 shows examples of food fraud events from 2017 – 2019. (Source: FAO. 2021. *Food fraud – Intention, detection and management. Food safety technical toolkit for Asia and the Pacific No. 5. Bangkok.*)

Table 1. Examples of Food Fraud Items

Food Item	Country	Food Fraud
Fish	China	A collaboration between Chinese and Italian scientists carried out DNA tests on 153 samples from 30 different brands of roasted Xue Yu (a kind of cod) fillet and found that 58 percent of the samples were substituted with other fish species (Xiong et al., 2017).
Honey	Australia	Almost 20 percent of honey on the Australian market is adulterated with substances such as cane sugar or corn syrup. The rate of adulterated samples went up to 50 percent for imports from Asia (Zhou et al., 2018).
Fruit Juice	Bangladesh	National authorities were forced to shut down a synthetic fruit juice manufacturing plant for producing juices that did not contain any fruit but were instead manufactured using hazardous chemical substances (Daily Sun, 2018).
Milk	Pakistan	The country is the world's fifth largest milk producer, authorities commonly confiscate milk adulterated with urea and contaminated water (The News, 2019; Daily Times, 2019).

Source: FAO. 2021. *Food fraud – Intention, detection and management. Food safety technical toolkit for Asia and the Pacific No. 5. Bangkok.*

The EU markets in their EU regulations there is a definition for fraud notification and not for fraud. The Commission Regulation (EU) 2019/1715 defines a 'fraud notification' in iRASFF and thus, indicates the key elements to be considered. In this regard, agri-food fraud is "a non-compliance concerning any suspected intentional action by businesses or individuals, for the purpose of deceiving purchasers and gaining undue advantage. (Source: https://food.ec.europa.eu/safety/eu-agri-food-fraud-network/what-does-it-mean_enm, in violation of the rules referred to in Article 1(2) of Regulation (EU) 2017/625".)

Apart from the adverse public health impact, food fraud plays a major role in negatively impacting consumers' trust in food industries and government agencies. Food safety professionals around the world are dedicated to ensuring that food is safe, but blind spots in food supply chains can provide opportunities for individuals and business to conduct food fraud. The table below shows terms and definition of types of Food Fraud (Source: FAO. 2021. *Food fraud – Intention, detection and management. Food safety technical toolkit for Asia and the Pacific No. 5. Bangkok.*)

Table 2. Some Types of Food Fraud

Term	Definition	Example	Potential public health threat that may lead to illness or death
Adulterate	A component of the finished product is fraudulent	Melamine added to milk	Fraudulent component
Tampering and mislabelling	Legitimate products and packaging are used in a fraudulent way	Changed expiry information; fraudulent description of production method or origin	Fraudulent packaging information
Over-run	The legitimate product is made in excess of production agreements	Under-reporting of production	Fraudulent product is distributed outside of regulated or controlled supply chain
Theft	Legitimate product is stolen and passed off as legitimately procured	Stolen products are mixed with legitimate products	Fraudulent product is distributed outside of regulated or controlled supply chain

Source: Adapted from Spink and Moyer, 2011.

Key challenges that we face if without specialized instruments and information it is difficult to detect and determine food fraud and it's only after consuming the product or if the product poses an immediate health hazard. Using the regular food safety and quality tests that to detect adulteration or other types of food fraud is also a challenge. With the fast-growing market of e-commerce food, online grocery shopping has given rise to new businesses and adapting to COVID19 measures food deliver to consumers no longer is face to face. Opportunity for consumers to inspect the produce to see their food before purchase it made presents another challenge and opportunity for food fraud. Table 3 shows recommendations.

The Codex Alimentarius Commission stated “Food fraud is not a new problem but one that is increasingly attracting major attention. The olive oil scandal in the 80s, the adulteration of milk in 2008 and the horsemeat fraud in 2013. Exposed the vulnerability of international food chains to fraud and organised crime. Food fraud is a global trans-national problem that impacts on the local agri-food economy, consumer health and consumer trust. (Source: <https://www.fao.org/fao-who-codexalimentarius/committees/codex-regions/cceuro/about/food-fraud/zh/>)

Table 3. Recommendations

Recommended Areas	Action
Policy and Legislations	Adopt a definition of food fraud at the national level. Review national food safety and quality legislation so that they are aligned with Codex Alimentarius, which provides a solid basis to counter food fraud.
E-commerce products	Develop a framework to respond to challenges related to food fraud in e-commerce.
Investment in New technologies to detect food fraud	Keep up to date with and invest in new technologies to counter food fraudsters such like DNA barcoding.
Public Awareness Programme	Continuous public awareness on emerging issues regarding food safety. In order to preserve consumers' trust and the safety of food supply chains, governments need to manage food fraud, especially when it jeopardizes the safety of food.

Source: FAO. 2021. Food fraud – Intention, detection and management. Food safety technical toolkit for Asia and the Pacific No. 5. Bangkok.

For more reading

1.FAO Food Fraud -Intention, detection and management. Food Safety technical toolkit for Asia and the Pacific.... <https://www.fao.org/3/cb2863en/cb2863en.pdf>

2.International and national regulatory strategies to counter food fraud Publication.