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Amalia Yiannaka

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Food Fraud: A persistent problem that demands a comprehensive approach

Amalia Yiannaka

Department of Agricultural Economics, University of Nebraska–Lincoln,
314B Filley Hall, Lincoln, NE 68583-0922, USA. ayiannak2@unl.edu

Food fraud commonly refers to the deliberate and economically motivated adulteration and mislabeling of food, but more broadly defined it also includes food theft, simulation that makes a fraudulent food product look like the legitimate product it copies, diversion, and overrun (Moyer et al. 2017). It is a longstanding and persistent challenge that impacts the global food sector; according to some estimates, food fraud results in annual costs of \$40 billion (Food Standards Agency 2020). The complexity of globalized agri-food supply chains which are long, fast-moving, and involve a large number of intermediaries, coupled with lax regulatory monitoring and oversight and lenient penalties, create opportunities for both legitimate actors who operate in the food supply chain and criminal organizations to engage in food fraud.

Published in *Journal of Consumer Protection and Food Safety / Journal für Verbraucherschutz und Lebensmittelsicherheit* (2023)

doi:10.1007/s00003-023-01465-6

Published by Springer Science and Business Media Deutschland GmbH.

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1 The widespread impacts of food fraud

Every participant in the food supply chain is impacted by food fraud. Honest producers, processors and retailers who uphold industry standards and produce and supply high quality food products have to unfairly compete with dishonest counterparts who face lower production costs because they do not actually produce the higher quality they claim to provide. Furthermore, following food fraud incidents that garner media attention, these producers, processors and retailers have to invest significant effort and resources to salvage the integrity of their sector. Developing reputation repair strategies is costly, requires coordinated efforts, and can adversely impact firm and industry profitability.

One of the many ways food fraud impacts consumers is through its potential to harm their health by causing sickness, illness or even death. Food fraud can also result in real income loss for consumers when they pay for quality that they do not actually receive, and/or when their health is impacted by food fraud incidents. In addition, food fraud incidents undermine consumer confidence and trust in the food sector and the government agencies that are tasked with overseeing its operations.

A case that demonstrates the potentially damaging effects of food fraud on the food sector and public trust is the 2008 melamine-tainted infant powder milk formula scandal in China. This food adulteration incident that sickened thousands of individuals and led to the hospitalization of 50,000 infants and six deaths, received international news coverage that severely damaged the reputation of China's food safety, impacted its food exports, and weakened its domestic dairy industry. Similarly, the 2013 European horsemeat scandal, where horse DNA was found in processed beef products in many European markets, caused public outrage and a loss of consumer trust in the food sector, as documented in polls and surveys following the incident.

2 Increased attentions to food mislabeling

Food adulteration incidents like the ones discussed above receive attention from the news media, the public, and policymakers due to

their potential health hazards. Food mislabeling incidents, which involve the misrepresentation of the food product type and quality, such as falsely claim that the product is organic or that it provides certain nutrients, have not traditionally received the same attention even though mislabeling is the most common type of food fraud. In recent years, however, mislabeling is gaining increased attention, including from consumer advocacy groups, in part due to the proliferation of credence attributes in the food sector that amplify the information asymmetry between producers and consumers. Credence attributes are product characteristics unobservable by consumers through search, consumption, or use. These attributes are often related to a product's production process such as being organic, raised without antibiotics, GMO-free, gluten-free and fair trade, and their provision is typically voluntarily. When foods possess credence attributes, consumers must decide whether to trust the claims producers, processors and/or retailers make about their products and whether they can rely on third-party certifiers and regulators to ensure that these claims are true. While third-party certification can certainly provide credibility to quality claims, it cannot alone deter food fraud as it cannot resolve the potential conflict of interest between those seeking certification who have an incentive to select more lenient certifiers and the certification bodies which may reduce their standards to compete with rivals and increase their customer base (Giannakas and Yiannaka 2023). To make matters worse, some of the credence attributes consumers value lack well-defined standards, such as claims that the product is 'ethically', 'humanely' or 'sustainably' produced, which makes claim verification more challenging and creates more opportunities for mislabeling and misrepresentation of food product quality.

In this environment, lax regulatory oversight hurts consumers, leaves them unprotected and opens the door for the involvement of consumer advocacy groups that seek to fight food fraud and increase transparency in the food sector. The role these groups play in trying to expose deceptive food labeling and marketing practices is highlighted in a 2021 *New York Times* article which reports a surge in litigation in 2020, with advocacy groups filing 220 lawsuits against food and beverage companies over misleading food labels (Jacobs 2021). A 2023 *New Yorker* magazine article also discusses legal activism against food companies (Larson 2023).

3 Learning from food fraud scandals

The uncovering of food fraud scandals presents an opportunity for policymakers, regulators and those involved in the food industry to try to understand what led to their emergence and what can be done to prevent them from happening in the future. Following the melamine-tainted milk scandal, China introduced food safety regulations, the Food Safety Law, that led to the establishment of the China Food and Drug Administration in 2013. Similarly, after the European horsemeat scandal, the European Parliamentary Research Service produced a report that identified the key food supply weaknesses that contributed to the incident, such as a low detection risk exacerbated by complex supply chains and inadequate penalties.

4 A multipronged approach is needed to fight food fraud

Because food fraud is intentional and those committing fraud try to avoid detection, combating food fraud requires a comprehensive approach that not only incentivizes the development and adoption of food fraud detection technologies but also ensures effective oversight and monitoring. Technologies such as DNA sequencing have been instrumental in uncovering numerous adulteration and mislabeling incidents especially in the seafood and meat sectors, while advances in blockchain technology have improved supply chain traceability. Similarly, information-sharing platforms such as the Rapid Alert System for Food and Feed (RASFF) operated by the European Commission, and interagency and intergovernmental collaboration such as the Food Fraud Network and operation OPSON can play a critical role in food fraud deterrence.

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