

## Fake: The Rise of Food Fraud in the Halal Supply Chain

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### Abstract

We live in increasingly challenging economic times, and the concomitant uncertainty associated with this state within the food industry has led to an emergence of unscrupulous suppliers and supply chain actors committing Halal food fraud. As Halal food supply chains become increasingly complex and global and as the sector continues to develop and grow, more significant opportunities arise for unprincipled practice. Further, catering to rising consumption and the resultant increased demand for Halal products and services means consumers in Halal supply chains are particularly vulnerable to fraud, adulteration and unwitting contamination as global demand outstrips supply. Certification and its associated labelling of Halal food products alone will no longer engender complete consumer confidence, particularly as consumers become better acquainted with the rising opportunities for food fraud, false advertising, and misleading conduct. This report is based on recognizing the religious importance of Halal food to Muslims and how food integrity is pivotal in the daily observance of Islamic mores. It examines how vulnerabilities in global supply chains can arise and be exploited to intentionally deceive and unknowingly contaminate food products consumed by devoted Muslims. A vital industry issue of concern to this discussion is the increasing importance of compliance, transparency, and traceability, combined with other risk mitigation approaches needed within Halal food supply chains to ensure product provenance. This review also examines the potential human capability development interventions required to strengthen further supply chain actors' competence and the consumer awareness needed to provide trust and confidence in the Halal food eco-system.

Keywords: Food fraud, Halal food, Halal food Supply Chain, Human capability development.

### Introduction

The food supply chain industry cannot underestimate the religious significance and importance of controlled food consumption for the Muslim community and needs to appreciate the devastating impacts that food fraud has on these consumers. Indeed, for every Muslim,

community confidence in the food chain must start with appropriate farm management procedures, then understand secure and respectful handling strategies during physical movement, and finally having faith in controlled distribution outlets. Put simply, community confidence must extend from farm to fork and everywhere in between [1]. This implies that to maintain the integrity of Halal food products throughout the chain, they must be rigorously secure in every way. All steps in their handling must be adhered to and respected by every person who forms part of the chain to avoid contamination with Haram items or 'najs' [2].

Therefore, it is essential that the industry institutes and then assures continual specific focus on food fraud prevention, thus precluding recurrent fraud vulnerability throughout the food supply chain [3]. This is where accurate and reliable food traceability becomes critical. Food traceability allows companies, stakeholders, and other supply chain actors to trace the origins and handling history of the products being sold to minimize the risks of inadvertent consumption of non-Halal food by isolating affected foods quickly. It is also imperative that greater industry awareness is placed on the religious significance of preserving Halal products, allowing the introduction of better control measures and the development of cultural competence along and within global supply chains. As demand for Halal food from suppliers, retailers, and restaurants grows exponentially, a constant reassessment within supply chains must occur to ensure community confidence in Halal standards from farm to fork.

### **Halal Food and its Importance to the Muslim Community**

'Halal' in the Arabic language encapsulates an Islamic belief representing things and actions permissible under Sharia law [2]. An equally important term in Halal is 'Thoyyib', a word that also comes from the Arabic language, which means 'good and wholesome' [4]. Based on these religious foundations, the term Halal is used as an indication of quality, connoting considerable value, benefits, and public religious observance to Islamic consumers and producers [5]. Consuming Halal food forms a fundamental component of the Islamic faith. Haram is, conversely, the diametric of Halal, describing prohibited or unlawful practices [6]. Haram and Halal are universally accepted dutiful terms that apply to all facets of a devout Muslim's life. In this regard, Islam is not only a religious observation, but it also encompasses the dutiful living out of a balanced way of life.

Food is a ritually fundamental component of Muslims' daily life. For this very reason, Halal food laws, compliance, and regulation clearly carry a special significance. Muslims do not exist to eat; in fact, eating faithfully and observantly is a religious expression to preserve survival and maintain good health. In Islam, eating is considered worshipful, like prayer, fasting, alms-giving, and other religious activities. It must be appreciated that Halal food regulations cover the complete range of operations and activities that occur from the farm to final consumption [7]. Thus, undesirable practices that constitute some fraud or malpractice along Halal food supply chains are very concerning for Muslim consumers [7]. For Muslim consumers, one of the factors influencing food purchase decisions is religious confidence in offered products. Every Muslim is strictly obliged to search for evidence of good handling practices before consuming Halal products [8].

## **Food Fraud**

Fraud can be understood as offering something that is 'not what it appears to be' and is an action deliberately used to deceive people, especially for monetary reward. Many opportunities for fraud are available throughout the Halal supply chain and can materialize in ingredients, raw materials, food packaging, and the final product. Such deliberate and unscrupulous activities for financial gain or to cause harm maliciously or intentionally could include substituting or diluting food ingredients, adulterating raw materials, tampering, mislabeling, or the misrepresentation of the materials or final products. Deception can also extend to misrepresenting something through misbranding, counterfeiting, or handling records inappropriately.

Essentially, food fraud falls under two distinct categories: those of (i) technical and (ii) time and place opportunities [3]. Within the technical sphere, the existence of opportunities for adulteration or counterfeiting of certain types of products and the general availability of situations allowing adulteration of material in a particular chain will increase the vulnerability to fraud. Adulteration includes ingredient substitution, dilution, concealment, artificial enhancement, allowance of impurities, use of undeclared, unapproved, or banned biocides, and authentic constituents' removal [9]. Opportunities in time and place increase when potential fraudsters have legitimate access to the location where fraud can be committed [3]. This could be direct access to the food product or the ability to interfere with processing lines [3]. In addition, this area could include activities such as relabeling an inferior product or tampering with product information in the form of altered date codes, or refilling quality product containers with lesser quality substitutes [10].

Research has shown that the most common types of food fraud range from substituting cheaper less wholesome or healthy ingredients for those of higher-cost religiously compliant alternatives, intentional mislabeling, counterfeiting, dilution, and adulteration the addition of unapproved enhancements [11]. Other fraud activities include the diversion of unfit pet food meat into the human food chain, re-dating out-of-date meat, and freezing and substitution of non-Halal meat (Haram) for genuine Halal products [11]. As a result of the known growing nature and breadth of these fraudulent incidents, there has been a resultant change in industry focus from the investigation of food fraud to risk mitigation and vulnerability reduction strategies [3,12,13].

### **The Rise of Food Fraud in the Halal Supply Chain**

In line with the Shariah jurisprudence highlighted above, it can be concluded that Halal products must comply with strict religious boundaries. For example, Halal food products must not contain pork, or its derivatives nor be derived from carcasses and non-Sharia slaughtered farm animals [14]. Further, they must never be derived from prohibited animals, blood products or from meat partly cut off from a living animal [14]. More broadly, Halal food must not be harmful to health, contain elements of fraud, and never contain intoxicating substances [14]. Given these observance guidelines, the risk of contamination in Halal food supply chains is a substantial concern for Muslim consumers [15].

The fake Halal meat cartel scandal of 2020 was perhaps one of the most startling events pertaining to Halal food fraud in more recent times. The scandal was first revealed to the public when a local Malaysian newspaper reported that a meat cartel had been smuggling non-Halal meat from countries such as China, Brazil, Canada, and Ukraine [16]. The initial report linked the smuggled meat with poor quality and even diseased kangaroos and horses. It was reported that upon arrival in Malaysia, these meats were mixed with beef in the warehouses before being labeled as Halal-certified beef [16].

These perpetrators, particularly in the Malaysian and Indonesian meat industries, used harmful and unsafe materials in assembling fraudulent meat products such as formalin, fake meat, exotic meat, dyes, and garbage meat [14]. More recently, it is becoming more common for adulterants to be deliberately and deceptively added to purposively increase visible quantities and reduce manufacturing costs. Whilst willful debasing of food offered for sale through adulteration becomes more common [1], it should also be recognized that non-Halal materials may also be ignorantly or accidentally introduced into the substances because of poor handling and storage practices, and the supply chain industry must be vigilant at all phases of food transportation and distribution. This is a human competence issue, which will be discussed later in this paper.

Fraudulent activities have unfortunately not been limited to beef and associated beef products. Recently, a series of surveys were conducted around so-called Halal labeled chicken products, and they alarmingly revealed:

- widespread practice of Halal mislabeling.
- deliberate 'pumping up' of chicken meat with water, where examples have been seen that a ½ half of an overall chicken's weight is added water.
- regarding the unscrupulous practice of 'pumping-up' chicken meat with water, it was found that the adulterant contained proteins of porcine and bovine origin, which were deliberate as they aided water retention in the chicken carcasses [17].

Muslims are forbidden to consume either pork or food adulterated with its derivatives. Alarmingly, in addition, to the bovine protein mentioned previously, it is also highly likely that they were a derivation of animals slaughtered contrary to Islamic law. Furthermore, it has been found that these additives used in these chicken products were often not listed on labels [17].

Trade-in, illegal Haram meat, is, unfortunately, big business. For example, in the United Kingdom (UK), it is now the third largest illegally traded food category, with a trading volume in the range of £1bn a year [18]. Indeed, the lack of coordination across and within borders [18] is likely to give rise to greater opportunities to commit food fraud. Unfortunately, it seems that in recent times, as demand rises and the market grows internationally, irresponsible parties have made Halal food a significant medium of crime [19]. Therefore, various food crime issues have arisen, including food adulteration, food fraud, and food terrorism [19], which are all becoming more prevalent, particularly as global supply chains become more complex.

## Combatting Halal Food Fraud

Combatting and reducing food fraud within global Halal supply chains is a multi-jurisdictional challenge and needs more than introducing certification and compliance auditing. It needs honest and trustworthy supply chain actors who are consciously prepared to protect the integrity of the food eco-system and regulators and lawmakers who have the cultural competence to ensure the legitimacy of products transiting or leaving their jurisdictions. These practices are clearly concomitant with the protection of the bonafides of other classes of food products, including vegetarian, gluten-free, non-allergen, organic, or other religiously or culturally significant food frameworks. Indeed, effective compliance measures need actors and stakeholders who evidence the necessary competence to discharge their duties in a culturally appropriate and respectful way. Respect and trust are fundamental to any complex supply chain system since consumers rely implicitly on the actions of others to ensure their personal safety, health, and well-being.

To better understand the critical control points and vulnerabilities in the supply chain, product flows should be mapped. In this situation, we need to understand the interconnections and interdependencies within the food distribution system and be aware of the opportunities for exploitation. Supply chain mapping can be used to give a more complete picture of material flow and the potential risks present, including those of a socio-economic, behavioral, and geopolitical nature. Constant vigilance is necessary, with products being able to be traceable from the origin of foodstuff to the act of consumption. Monitoring strategies deployed in the food chain focus on origins and label verification, specification management, supplier audits, analytical testing at critical control points, and anti-counterfeit and cross-contamination warning systems, all of which contribute to the implementation of traceability systems in Halal food production [20].

However, in Halal food supply chains, there are many more elements to consider ensuring compliance measures to ensure Halal Tayyiban principles are released. A more holistic, culturally sensitive Halal Tayyiban lens would also include a more comprehensive investigation along Halal supply chains to include 'second order' details like resource conservation, animal welfare, elimination of animal cruelty, slaughtering practices, the housing of animals and their safe transportation [21]. Other factors that should be included in such compliance assessments would look closely at agricultural practices, reductions in the usage of fertilizers and pesticides, and endeavors to eliminate contaminants and pollutant agents [21]. Auditing of Halal supply chains would also need a comprehensive approach to the food product and flows to ensure safety, traceability, security, and transparency [21].

To truly understand vulnerabilities in Halal supply chains, control plans should be deployed which have a strong sense of 'thinking like a criminal'. Compliance and traceability efforts need to be effective and efficient. One such approach is the deployment of testing technologies that can aid in identifying food contaminants with the aim of ensuring the integrity of food products and raw materials [22] in a cost-effective, fast, non-invasive manner. This could be, for example, by using hand-held near-infrared (NIR) devices [21]. Further, vulnerability assessments can be a valuable tool to illuminate the existence of three essential elements: those of criticality, accessibility, and vulnerability [20], thus removing the resultant food adulteration threats.

## Halal Supply Chain Compliance – Building Human Capability

An oft-forgotten important component of the supply chain is the human element. While an array of tools, systems, and technologies can be deployed in this area, their effectiveness is resultant on the human discharge of skills, knowledge, and attitudes. The human component of the Halal food supply chain is a foundational component of ensuring compliance, in not only meeting certification requirements and regulations pertaining to Halal, but also the establishment of respectful stakeholder practice needed to ensure consumer trust in the Halal food system [23]. This is needed to be carried out in the face of significant human capability development challenges, which are unfortunately still particularly evident in globalized and increasingly complex food supply chains. Halal product provenance, as products are traded and transported across regions [24], is of particular concern, particularly given that not all jurisdictions have the necessary regulatory food safety frameworks, corruption monitoring regimes, compliance checks, human talent, and associated infrastructure and cultural awareness to ensure complete provenance. Further, to achieve the resultant consumer trust, Halal products, and services, key supply chain actors and stakeholders need to build competent, attentive, and religiously aware workforces. Competent and cultural aware supply chain and logistics workforces are also pivotal in ensuring unwitting breaches, such as inadvertent cross-contamination, do not occur.

Educating consumers is also a very necessary component of ensuring the Halal supply chain and product integrity. A recent study recommends that Islamic authorities should seek to continuously find ways to improve consumer awareness around possible areas of Halal food fraud [7]. Many Muslim consumers are often understandably not well informed as to their consumer rights and the associated legal protections pertaining to Halal products and Halal certification procedures [25], and thus must be educated along and throughout the supply chain [24]. In this regard, ensuring that Muslim consumers purchasing food can accurately identify an authentic Halal logo, for example, could assist in reducing the possibility of purchasing fraudulent products [8], since an individual's knowledge and awareness are important determining factors in building their resultant perception regarding Halal compliance [26].

### Conclusions

This discussion aims to raise several key issues around the rapid growth of the Halal food sector globally. The rise of food fraud has meant that many Muslim consumers are becoming more aware of the importance of food bonafides and the provenance of Halal food products that they purchase. This exploratory paper highlights the importance of vigilance and the need for supply chain actors to become more cognizant of the significant impacts that food fraud has on Muslim consumers. Non-Muslim countries and their workforces who wish to participate in the Halal food eco-system need to build their cultural competence to ensure they are discharging their responsibilities respectfully. Building human capability, both along the supply chain and amongst Muslim consumers, is also essential in identifying activities of a fraudulent nature. This development also needs to extend from merely fraudulent responses to ensuring that supply chain actors do not inadvertently contaminate Halal food products. Further, to reduce opportunities for food fraud, greater emphasis is needed around mapping supply chain vulnerabilities, incorporating traceability protocols, mitigating risk, creating transparency, and building awareness around critical control points that could be exploited by unscrupulous behaviors.

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