

FOOD FRAUD

Food retail sector
approaches to
control fraud

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Retail & the supply chain

A long and winding road

- Retail is positioned at the end of a often very complex supply chain, which reduces the **access** to, and **control of the information** generated at primary production level.
- It is a significant challenge for retailers to obtain full **traceability & transparency** throughout the supply chain for all the various ingredients in a product
- The **suppliers** of these products typically involves plantation owners, processors, importers, traders, brokers, packers, wholesalers, manufacturers, and others before the final product reaches the customers
- With thousands of **products**, a retailer has millions of opportunities for defective data to destroy customer satisfaction and damage the efficient flows of information across a supply chain, and ultimately the **private brand reputation**



Customer expectations & legal requirements

Adding complexity to a complex situation

- **The customer wants it all**
 - Claim after claim, logo on top of logo
 - Free from anything, 100% of everything
 - Omni-channel, convenience, long expiry date, ...
- **Evolving Regulations & Directives**
 - Country of origin labelling
 - Challenge test guarantees
 - Allergen management
 - Recycled packaging
 - Carbon neutrality
 - ...



A systematic approach

Fraud as part of a Food Safety Management System

- Assessing and preventing food fraud is an integral part of a food safety management system
- Every retailer should adapt it to their own practices:
 - Warehouse certification status
 - Types of shop-in-the-shop
 - Private label production (sites & instore)
- The concept of fraud **vulnerabilities** prevention should be based on the assessment of possible motivations, opportunities and control measures in place



Entering...the matrix

Don't guess, but assess

- A vulnerability **assessment** should consider the many factors that could increase a retailer's **risk** to food fraud:
 - Ingredients & finished product (incl. Packaging!)
 - Supplier & supply chain
- 4 principal **factors** to take into account:
 - History / relationship
 - Economic factors
 - Complexity
 - Geopolitical factors
- **Continuous** improvement & update



Risk mitigation measures

Lowering fraud vulnerability

- **Set high standards, protocols & procedures**
 - Mandatory GFSI Certification schemes
 - Clear & signed contractual agreements
- **Master your product data**
 - Product specification, sample vs. end product
 - Claims, labels & logo's + taste panel score
- **Reduce & stabilize your supply chain**
 - Local sourcing
 - Strategic partnerships (vs. yearly tenders)
- **Trust but verify**
 - Analysis & audit plan
 - Warehouse reception controls



Food Fraud Control

1. Near Infrared Spectroscopy

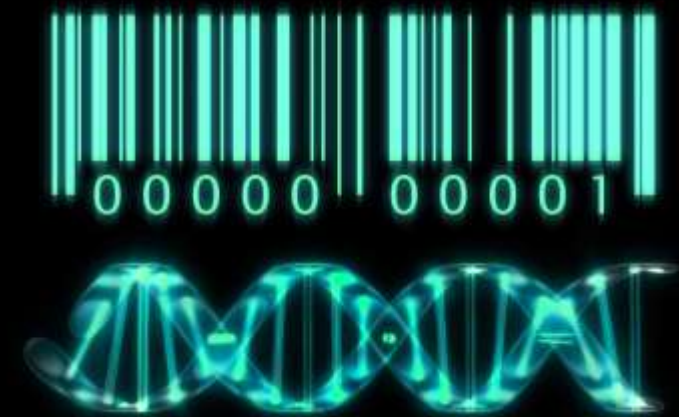
- An innovative hand scanner makes it possible to detect food fraud or low-quality food at a glance
- using light and its reflection, the composition and texture of a food product can be measured, to determine whether water has been added to a food product such as chicken, what kind of species it is, as well as whether a product has the specified quality characteristics
- In 70% of the samples where deviations were detected by the new technology, this was effectively confirmed afterwards by the lab
- A sample that was measured can go back into the flow of other products - for example, in production, or when the product still needs to be packaged. This way, there is no food waste.
- The whole system is also highly scalable: it allows retailers, like Colruyt, to carry out as many measurements as needed, without extra cost



Food Fraud Control

2. In-house DNA barcoding to fast authentication in complex food samples

- Identify and semi-quantify the presence of undeclared food ingredients
- Complex food samples (hamburgers, fish stew, meat stew, fish balls...) are susceptible for mislabelling because a mix of ingredients can be fraudulently added
- Traditional methods for analysing complex food products tend to be slow and costly. Newer types of DNA sequence analysis, known as NGS (Next Generation Sequencing) applications have also slow turnaround time, but in addition require large investment costs and well equipped laboratories
- Frequent food authentications tests with much quicker turnaround time (1 day instead of 7), making fraud (substitution) easier to be detected
- Extend the use of DNA based food source identification (barcoding) for authentication purposes by retailers



Food Fraud Control

3. Data integrity through blockchain technology

- Launched on the Filière Qualité Carrefour, pork meat range, in early 2019. Now active on more than 70 products.
- A digital storage technology used to make certain information secure and unforgeable, but also to ensure its proper transmission throughout the supply chain
- Applied to the food sector, blockchain makes it possible to store information relating to the product: its origin, its place of rearing or its production method
- Everything concerning the origin of the product, including the breeder or producer, its entire journey and all stages of processing up to packaging
- The blockchain technology offers all the guarantees of reliability, cannot be falsified and makes access to information easy via a simple smartphone



From food fraud management to food integrity culture

Incorporating the human factor

- The culture and climate (perception of employees) in an organisation such as a retailer or producer play an important role in food fraud control
- Product fraud is still largely related to food safety & product fraud and therefore unfortunately often considered as “a thing for QA“
- Product integrity does not only relate to the production processes in the production plant but also to administrative processes as well as to the supply chain and how the company handles raw material related risks
- Aims to build trust between a supplier and their retail customer: As a retailer, you want to be sure that a supplier can deliver products that meet your product integrity requirements and specific specifications



From food fraud management to food integrity culture

IFS Product Integrity Assessment (PIA)

- Was developed using the experience of Dutch retailers, as an in-depth assessment of how a manufacturer has identified and mitigated the risks of fraud and integrity
- It covers a much wider perspective than a food safety audit: the standard contains requirements regarding operational, administrative, organisational and economic processes within one company. Different departments are being questioned in what they do and how their processes are checked
- In addition, the standard includes an operational and administrative system for the labelling, separation, quantification and traceability of raw materials and finished products. This creates complete transparency in the product flow
- Ultimately, the effectiveness of the entire system will be assessed through internal audits, improvement circles and management review
- Additional attention points within the assessment can be individualized by the participating retailers. In this way, each assessment is targeted and tailored to the retailer's needs





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