FOOD FRAUD – Threats & Impacts

THE INDUSTRY’S RESPONSE
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GFSI Board Member and Former Chairman

Outline

- Introduction to GFSI
- Food Fraud
  - Types
  - Drivers
  - Impact
- Food Industry's Response
- Analytical Testing Strategy
GFSI: Global Food Safety Initiative

- Launched in 2000 – GFSI is an industry-driven initiative gathering world’s leading food safety experts
- GFSI provides leadership & guidance on food safety management systems
- GFSI is managed by the CGF
  - CGF is a global parity-based industry network which brings together CEOs from 400 companies across 70 countries
  - CGF member companies have combined sales of €2.5 Tr.
  - CGF is governed by a Board of Directors including 50 manufacturers and retailers

GFSI Mission

The mission

Provide continuous improvement in food safety management systems to ensure confidence in the delivery of safe food to consumers worldwide.
**GFSI Objectives**

### GFSI Objectives:
- Reduce food safety risks
- Manage cost in the supply chain
- Develop competencies and capacity building
- Facilitate knowledge exchange and networking

### Key Activities:
- Specifying in its guidance document, the requirements for food safety schemes and how these requirements should be implemented, controlled, and monitored
- Driving global change through multi-stakeholder projects on strategic food safety issues

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**A Global Multi-Stakeholder Platform**

[Diagram showing various stakeholders such as Government, Scheme Owners, Suppliers, Accreditation Bodies, Service Providers, Food Service, Academia, International organizations, Certification Bodies, Retailers, and GFSI interconnected.]

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Platform for Collaboration

Building Confidence in Certification

Benchmarking & recognition of food safety management schemes against the **GFSI Guidance Document**

- Sets the requirements for food safety management schemes and key elements for the production of food and feed
- Defines the requirements for the effective management and control of conforming schemes
- Puts in place transparent procedures for the GFSI benchmarking process
‘Once Certified, Accepted Everywhere’

These are the recognized schemes:

![Recognized schemes](image)

Other Activities within GFSI

**Global Markets Programmes**
- Tool for development of supplier food safety management systems toward certification
- Targets less developed companies in primary production and manufacturing
- Facilitating their market access

**Auditor Competence**
- Consensus on the skills, knowledge and attributes that a competent food safety auditor should possess
Benefits of the GFSI Approach

Supply chain
- Improved product integrity
- Better access to market
- Reduces duplication

Public Health
- Improved public health
- Complement legislation
- Reduced foodborne diseases
- Country reputation & local economy

Food Fraud in the Context of Food Safety

- Economically driven
  Motivation is ‘GAIN’

- Ideologically driven
  Motivation is ‘HARM’

Unintentional / accidental adulteration

Science based
Food borne illness

Intentional adulteration

Food Fraud
Food Quality
Food Defence
Food Safety
FOOD FRAUD

- Sunflower oil partially substituted with mineral oil
- Hydrolyzed leather protein in milk
- Poultry injected with hormones to conceal disease
- Harmful food colouring applied to fresh fruit to cover defects
- Expired, provenance (unsafe origin)
- Toxic Japanese star anise labeled as Chinese star anise
- Mislabelled recycled cooking oil
- Sale of excess unreported product

Terminology

• Sunflower oil partially substituted with mineral oil
• Hydrolyzed leather protein in milk
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Food Fraud: A Global Concern

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Top Foods & Ingredients for Fraud

- Fish
- Olive Oil
- Milk
- Honey

Why is Food Fraud increasing?

- Complex food supply chains
- Challenging economic times
- Food supply is becoming more global
- Increasing pressure for unscrupulous suppliers to commit food fraud

The horsemeat scandal

Example of Complex Supply Chain

Source: www.economie.gouv.fr

Vanilla: a classic case of supply and demand ...

Current price: 30 € / kg
But in 2003: prices reached 500 € / kg

Food fraud risk
Some Numbers on Food Fraud

Over 2,100 records

Level of fraud est. 10%
Cost to global food industry est. $30-40 billion
Cost of one incident between 2% to 15% of ann. rev.
$400 million impact for a large $10 billion company
$60 million impact for a small $500 million company

• source: UK FSA
• source: J. Spink, MSU
• source: GMA

The Impact of Food Fraud

Impact on business
- Consumer trust
- Lost sales
- Crisis management

Impact on consumer
- Most cases of food fraud not harmful
- But there are some notable exceptions

Consumer trust
Lost sales
Crisis management
Most cases of food fraud not harmful
But there are some notable exceptions
Global Response

Food Related Crime

THOUSANDS OF TONNES OF FAKE FOOD AND DRINK SEIZED IN INTERPOL-EUROPOL OPERATION

The Hague, the Netherlands

February 2014

More than 12,000 tonnes of fake or substandard food and nearly 400,000 litres of counterfeit drinks have been seized in an Interpol-Europol coordinated operation across 33 countries in the Americas, Asia and Europe.

Targeting the organised crime network behind the EU food and drink market, Operation Opson II led to the recovery of more than 171,000 litres of oil and sugar, more than 98,000 bottles of wine and chocolate bars, 20 tonnes of spices and condiments, 180 licences of vaccines, 40 licences of fish products and 42 licences of honey. In total, some 90 people were arrested or detained with investigations continuing in many countries.

The operation, conducted throughout December 2013 and January 2014, and supported for the first time by the European Commission’s Directorate General for Health and Consumers, involved police, customs, national food regulatory bodies and partners from the private sector, with direct carry out at shops, markets, airports, seaports and private houses.
Food Fraud Think Tank - New Concept for GFSI

Recommendations by Think Tank

**FOOD FRAUD MITIGATION**

- **Vulnerability Assessments**
  - Supply chain mapping
  - Socio-economic
  - Behavioural
  - Geo-political
  - Historical

- **Vulnerability Control Plan**
  - Monitoring strategy
  - Origin/label verification
  - Specification management
  - Supplier audits
  - Analytical testing strategy
  - Anti-counterfeit technologies

‘Think like a Criminal’
GFSI Position - Integral Part of FSMS

Food Safety
- Mitigation of unintentional / accidental adulteration
  - Science based

Food Defence
- Mitigation of intentional adulteration
  - Ideologically motivated

Food Fraud
- Mitigation of intentional adulteration
  - Economically motivated

GFSI Position

Decision:
Incorporation of new key elements in Guidance Document
- Cascade to food safety management schemes via benchmarking process
- Incorporation in company’s food safety management system

When:
- Many ongoing initiatives on food fraud
  - Leading role for GFSI
  - Direction & Alignment
- Schemes and companies need time for this new challenge

Implementation of Food Fraud Mitigation

Incorporation in GFSI Guidance Document Vs. 7 (2016)
Incorporation in Food Safety Management Schemes
Implementation and execution in companies’ FS Management System
Certification via third party audits

Current Activities

WHAT
- Requirements

HOW
- Guidelines for implementation
SSAFE is a non-profit organization aiming to strengthen recognized food protection systems through public-private partnerships. For more information visit www.ssafe-food.org.

**Initiative on the ‘HOW’**

- **Practical guidance**
  - Help companies undertake a vulnerability assessment
  - Help companies prepare a plan to control the identified vulnerabilities

**The Analytical Testing Strategy**

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'Think like a Criminal'

Credits to Michele Lees, Eurofins
The Analytical Testing Strategy

Credits to Michele Lees, Eurofins

Targeted Analysis
- target list of components
  - we know what to look for and only find what we are looking for

Non-Targeted analysis
- product/ingredient profile
  - we also find what we are NOT looking for

Detecting Fraud...

Credits to Michele Lees, Eurofins
Requirements for SMART Testing: Summary

WHERE
- Identify vulnerable points in supply chain
- Check composition
- Absence of known adulterants
- Non-targeted screening

WHAT
- Frequency
- High risk product or 'random' testing program

WHEN

S
- M

A
- R

T

Credits to Michele Lees, Eurofins

Non-Targeted Screening - Part of an Early Warning Strategy

Infrared spectroscopy (NIR, FT-IR...)

Specificity
High Resolution NMR

High Resolution Mass Spectrometry (LC- or GC-hyphenated)

Credits to Michele Lees, Eurofins
Non-Targeted Screening - Part of an Early Warning Strategy

Example:
High Resolution NMR as a monitoring tool for milk

Cysteine detected → indicating addition of protein hydrolysate (from hair, feathers)

Credits to Michele Lees, Eurofins

Look Beyond the Obvious
&
Find the Needle in the Haystack!
THANK YOU

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