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8.12.1 CASE: Intentional – for economic gain: E.g., Food Fraud

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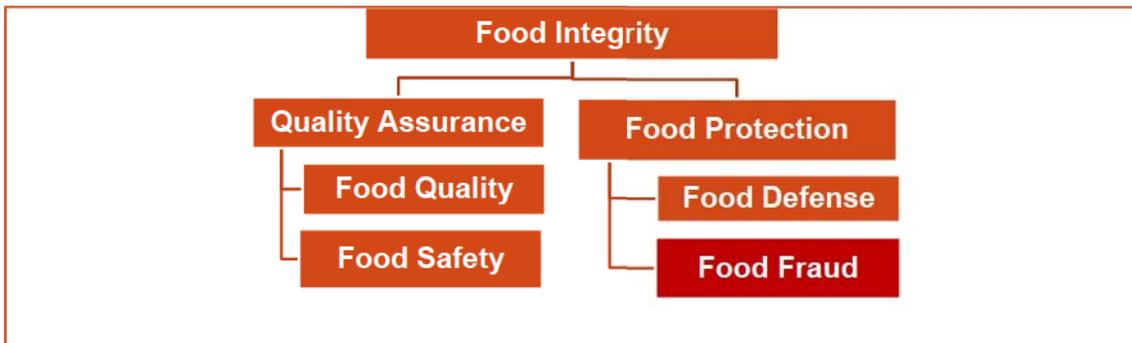
A specific type of supply chain disruption is from product fraud intended to harm the target product or company economically. This problem is an intentional act of deception for economic gain using the product or service produced by this enterprise. In the food industry, this is referred to as food fraud, which includes laws, regulations, standards, and certifications. To provide an application example, a primer on food fraud prevention is included here.

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Excerpt from Spink (2018).

Primer on Food Fraud Prevention (Published in September 2018 by John W. Spink, Ph.D., www.FoodFraudPrevention.com)

[This is an excerpt from the Primer on Food Fraud Prevention. Food Fraud is categorized under Food Protection with Food Defense. Food Protection and Quality Assurance are both under Food Integrity (Figure 15).



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Figure 15: Food Integrity Hierarchy of Quality Assurance (e.g., Food Quality and Food Safety) and Food Protection (Food Defense and Food Fraud) (Ref?)

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Food Fraud - illegal deception for economic gain using food¹

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While this has been ongoing since the very beginning of commerce (recorded in 400 BC), this is a hot topic due to widely publicized incidents such as melamine in infant formula and pet food (2007) as well as the horsemeat in the beef incident (2012). The increased scrutiny, awareness, and liability created industry-led compliance standards and certifications such as GFSI. Governments now have specific Food Fraud compliance requirements, such as the USA Food Safety Modernization Act (FSMA). There is a growing awareness - and great concern - that Food Fraud has been a compliance requirement in Sarbanes-Oxley (2002/2007) and even the USA Food, Drug & Cosmetics Act (1938). The biggest industry concern is the financial and brand equity cost of any recall. There is an emerging trend to correlate Food Fraud and all food risks into a 'risk map' using Enterprise Risk Management type practices.

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The term "Food Fraud" has been used for years but was formally defined in 2011 in the Journal of Food Science article "Defining the Public Health Threat of Food Fraud."³ Once Food Fraud is defined, it is a unique "thing," then there is a specific classification of incidents and structured response or countermeasures. "What is measured gets managed."

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- **Types of Food Fraud include:** Adulterant-Substances (dilution, substitution, concealment, etc.), Tampering (mislabeling), Theft (cargo theft, employee theft, etc.), Diversion/ Gray Market, and Intellectual Property Rights Counterfeiting.⁴
- **Type of product fraudsters:** recreational, occasional, occupational (a company or individuals operation from within the food industry - probably the most common fraudster), and professionals (their only activity is a crime).³
- **The Food Risk Matrix:** This is a common way to define the relationship of the Food Protection concepts of Food Quality, Food Safety, Food Fraud, and Food Defense (Figure 15).³

Food Quality	Food Fraud	Motivation: Economic Gain
Food Safety	Food Defense	Harm including health, economic, terror
Unintentional	Intentional	Food Risk Matrix³

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Figure 16: Food Risk Matrix (ref)

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83 **GFSI Compliance:** After the term was defined, the next major advance was in 2014 when the
84 Global Food Safety Initiative (GFSI) published its Food Fraud Position Paper. This paper
85 stated that Food Fraud would be a requirement for GFSI certification. The GFSI position
86 was defined by their GFSI Food Fraud Think Tank.” GFSI is - a consortium of most of the
87 world’s food companies created to harmonize food safety standards and certification. This
88 concept has become a *de facto* requirement for doing business.

89 • **Compliance:** The GFSI position was stated in January 2014, the requirement was
90 published in February 2017 and a formal requirement one year later in January 2018. As
91 early as July 2015, there has already been Food Fraud requirements for food standards
92 such as BRC and IFS. An additional resource is the May 2018 publication on GFSI
93 Food Fraud Technical Document. In addition, Certification Programs Organizations
94 have published Food Fraud related guidance such as by FSSC, BRC, IFS, and SQF.

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96 • **Requirements:** GFSI requirements include:

97 ○ 1. Conduct and document a Food Fraud Vulnerability Assessment

98 ○ 2. Implement and document a Food Fraud Prevention Strategy

99 ○ 3. Address the GFSI scope, which includes adulterant-substances, theft,
100 counterfeiting, stolen goods, and others.

101 ○ Note: The guidance document provides over-arching concepts, so direction is
102 not more than “do it.”

103 **SSAFE Organization - Food Fraud Vulnerability Assessment (FFVA):** Many of the GFSI
104 Board of Directors are on the SSAFE Board. GFSI endorsed the SSAFE Food Fraud
105 Vulnerability Assessment guidance that created the SSAFE Food Fraud Vulnerability
106 Assessment (FFVA). SSAFE asked PWC to create the online access, and to manage, the
107 tool.

108 **US Food Safety Modernization Act (FSMA) of 2011:** The regulations were defined in “final
109 rules” in 2015-2016. Economically Motivated Adulteration (Food Fraud) is covered in the
110 “Preventive Controls” rule (FSMA-PC). Further insight is in the Preventive Controls for
111 Human Food Qualified Individual training (PCHF-QI).’ FSMA requires a hazard
112 assessment and control plan for a “hazard that requires a preventive control.”

113 **US Laws, including the Food, Drug & Cosmetics Act (FDCA) of 1938:** Addressing all types
114 of Food Fraud is already a regulatory requirement such as in FDCA “Adulterated Foods”
115 and “Misbranded Foods” sections. Also, other related commercial laws apply, including
116 smuggling, tampering, counterfeiting, and stolen goods.

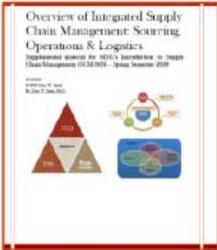
117 **US Securities Laws, including Sarbanes-Oxley (SOX) of 2002:** Food Fraud is a requirement
118 for SOX compliance - for the company and the auditors - since product fraud is a “material
119 fact” that could impact the financial condition of the operations.”

- 120 • **To note:** From discussions with Board/ CEO/ CFO/ General Counsel, it is a clear and
121 understood application. Also, a Board of Directors expects that the CEO/CFO is already
122 fully addressing all vulnerabilities, including product fraud.

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124 **Managing and Decision-Making for Food Fraud - not just conducting assessments:** A - or
125 THE - missing link has been correlating any type of food risk assessment with all food risks
126 with the resource-allocation decision-making within a company. It is most efficient to
127 connect into a current standard operating procedure such as a ‘risk map’ in an ‘enterprise
128 risk management’ system. This statement may seem obvious and simple, but it is neither.
129 The concept is simple, but the application is complex and unique for each company based
130 on the unique fraud opportunity in relation to the individual risk appetite. After establishing
131 the risk assessment framework, companies need help with organizational design and
132 management - who, what, where, when, and why for a Food Fraud Prevention Strategy
133 (FFPS).

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8.12.2 CASE: Intentional - for harm: E.g., Food Defense

A specific type of supply chain disruption is from product attacks intended to cause harm to the target or company. This problem is an intentional act of public health, economic, or terror harm to the target product, company, or country. In the food industry, this is referred to as food defense, which includes laws, regulations, standards, and certifications. To provide an application example, a primer on food defense prevention is included here.

Supplemental Reference for SCM Intro to Food Defense^o
Authors: John Spink & [PENDING APPROVAL]

Applied to the *food supply chain*, this food defense review builds upon the course module on *Risk Management*, which considers *supply chain disruptions* beyond *unintentional natural events* such as weather or natural disasters to include *intentional acts for harm*. The intentional harm can be targeted at a company, brand, product group, country, or region of the world.

Food defense is the protection of the food supply from an intentional act that has intent to cause damage of economic, public health or terror and fear.[39-42] In some instances this is classified as food terrorism [43, 44], in others it is referred to as wide-scale human health harms (IA Rule)[45, 46], and others it is smaller-scale harm (tampering)[39, 42]. The smallest scale could be targeted against an individual person, company, or manufacturing plant facility and have economic (sabotage) or malicious intent (seeking to cause illness or death).

¹⁰ This is a one-page supplemental reading for “Introduction to Supply Chain Management” (SCM 303) within the Department of Supply Chain Management, Eli Broad College of Business at Michigan State University.

160 The scope of protecting the food supply chain from intentional acts for harm is defined
 161 either by (1) all acts or by (2) acts that have the intent to cause major damage or are
 162 considered terrorism.

163 The general industry wide-required Food Safety Management System such as is
 164 endorsed by the Global Food Safety Initiative (GFSI) - implemented through food safety
 165 standards such as BRC, FSSC 22000, SQF, IFS, and others - focus on all types of
 166 intentional harms that could cause any problems for the companies. In many instances - or
 167 some would consider most instances - buyers require their suppliers to be fully compliant
 168 with all aspects of the GFSI requirements, including addressing all types of food defense.

- 170 • **Food Defense (GFSI):** Protect against intentional acts that have the intent to harm.[39]

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172 In contrast, the US Food Safety Modernization Act of 2011 (FSMA) published the
 173 Intentional Adulteration Final Rule (FSMA-IA) that defines regulatory requirements. (ref
 174 fsma, fsma-ia)

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- 176 • **Food Defense (FSMA-IA):** is protecting against “wide-scale [human] health harm” [45]-
 177 or from the FSMA law “hazards that may be intentionally introduced, including by acts
 178 of terrorism.[47]

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181 A note about terrorism: The term *terrorism* is defined by many different groups in many
 182 different ways. To start, as defined in Merriam-Webster: “terrorism” is “systematic use of
 183 terror, especially as a means of coercion” and the base terror, is “a state of intense or
 184 overwhelming fear.”[48]The US FBI defines *international terrorism* as “Violent, criminal
 185 acts committed by individuals and/or groups who are inspired by, or associated with,
 186 designated foreign terrorist organizations or nations (state-sponsored).”[49] The Terrorism
 187 Risk Insurance Act of 2002 - Public Law 107-297 states the U.S. Government must certify
 188 “to be an act of terrorism,” “dangerous to human life, property or infrastructure,” and “to
 189 have been committed as part of an effort to coerce U.S. civilians or to influence either policy
 190 or conduct of the U.S. Government through coercion.”[50]

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192 **Conclusion:** The food supply chain management compliance requirements require systems
 193 to address supply chain disruptions. For a company, the requirements are defined by laws or
 194 regulations (e.g., FSMA-IA, FSMA-FSVP, and sanitary transportation of food), customer or
 195 industry certifications (e.g., ISO 9000, 31000, 22000, 22380, 28000) or food safety standards
 196 (e.g., GFSI), or by internal controls (e.g., general counsel required activities often supporting

197 other regulations such as the US Sarbanes-Oxley Act of 2007).[16, 17, 26, 27, 39, 45, 51-53]
 198 In general, there are systems to assess and manage all types of intentional acts for harm and
 199 more specific root cause of terrorism.

200

201 Glossary:

- 202 • **Biodefense** in the control or mitigation for bioterrorism that addresses “medical
 203 measures to protect people against bioterrorism,” including “medicines and vaccinations”
 204 (NLM 2016).
- 205 • **Biosecurity** is defined by the World Health Organization (WHO) as “protecting
 206 biological resources from foreign or invasive species” (UNOG).
- 207 • **Biosafety** is to “prevent unintentional exposure to pathogens and toxins, or their
 208 accidental release”(UNOG).
- 209 • **Bioterrorism** is defined by the U.S. FDA as “threatened or actual terrorist attack on the
 210 U.S. food supply and other food-related emergencies” (FDA 2002). The U.S. Center for
 211 Disease Control (CDC) also defines it as “the deliberate release of viruses, bacteria, or
 212 other germs (agents) used to cause illness or death in people, animals, or plants. ...
 213 Biological agents can be spread through the air, through water, or in food” (CDC 2013).
 214 Examples from the CDC include anthrax, botulism, brucellosis, plague, smallpox, and
 215 tularemia (CDC, 2013).
- 216 • **Food Defense (FSMA-IA):** Protecting against “wide-scale [human] health harm” -- or
 217 essentially the public health results of an act of food terrorism (not a hazard, as that term
 218 does not include the outcomes, know what I meant?)
- 219 • **Food Defense (General)** is broadly defined as intentional attacks on the food supply
 220 chain, Huh? No. Those activities intended to decrease the RISK of an act of food
 221 terrorism.
- 222 • **Food Defense (GFSI):** Protect against intentional acts that have the intent to harm (GFSI
 223 2018).
- 224 • **Food Fraud:** Illegal deception for economic gain using food (all types of fraud).
- 225 • **Food Integrity (EC, FIP):** The product is of the specification defined, such as quality and
 226 label claims (EU FIP 2017).
- 227 • **Food Protection (FDA, 2007):** Address food safety and food defense (including food
 228 fraud/ EMA) (FDA 2007).
- 229 • **Food Security** is the access to a “safe, continuous, and nutritious supply of food” (WHO
 230 2009). IFS Management (a GFSI compliance food safety standard formerly known as

- 231 International Featured Standards) cautions: “A misconception of Food Defense is to
232 consider it a synonym of Food Security” (IFS 2012).
- 233 • **Terrorism, Food (Food Terrorism)** is “an act or threat of deliberate contamination of
234 food for human consumption with chemical, biological or radio nuclear agents for the
235 purpose of causing injury or death to civilian populations and/or disrupting social,
236 economic or political stability” (WHO 2002). [Note: this term was published in 2002
237 appears only four times on the WHO website, including this citation.]
 - 238 • **Terrorism, International (FBI)**: is “Violent, criminal acts committed by individuals
239 and/or groups who are inspired by, or associated with, designated foreign terrorist
240 organizations or nations (state-sponsored).”
 - 241 • **Terrorism, Domestic (FBI)**: Violent, criminal acts committed by individuals and/or
242 groups to further ideological goals stemming from domestic influences, such as those of a
243 political, religious, social, racial, or environmental nature.
 - 244 • **Terrorism** (Webster’s Dictionary): is “systematic use of *terror* especially as a means of
245 coercion” and the base
 - 246 • **Terror** (Webster’s Dictionary): is “a state of intense or overwhelming *fear*.”

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