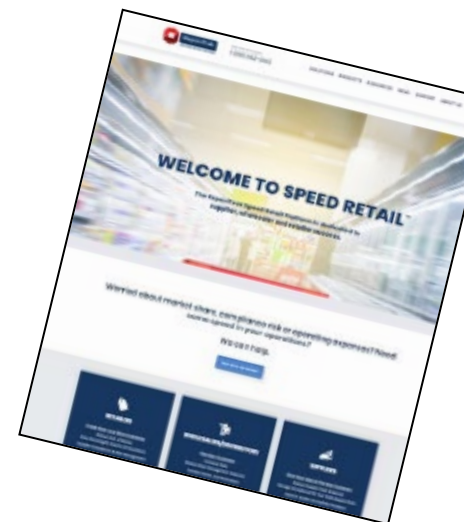


Quarterly Trends Update: Food Fraud Compliance and the GFSI Food Fraud Technical Document / 4Q-2018

Webinar: Wednesday, December 12, 2018
1:00 to 2:00 PM ET

John Spink, PhD & Douglas C Moyer, PhD

Director & Assistant Professor, Food Fraud Initiative
College of Veterinary Medicine/ Food Safety



WWW.FoodFraud.MSU.edu Twitter @FoodFraud and #FoodFraud



Food Fraud Curriculum

Massive Open Online Course (MOOC – pronounced /mōōk/)

<http://foodfraud.msu.edu/mooc/>

Free, open, online, open to anyone, with an optional Certificate of Completion

Format: Typically monthly with two webinars that also on-demand

1. Food Fraud Overview MOOC
2. Food Fraud Audit Guide MOOC
3. Food Defense Audit Guide MOOC
4. Food Fraud VACCP (Vulnerability Assessment and Food Fraud Prevention Strategy Development) MOOC

Executive Education (Short-Course)

- Food Fraud Strategy, Quantifying Food Risk with Vulnerability Assessments

Graduate Courses (Online, Three Credits)

1. Food Fraud Prevention
2. Anti-Counterfeit & Product Protection (Food Fraud)
3. Quantifying Food Risk (including Food Fraud)
4. Global Food Safety (including Food Fraud)
5. Food Protection and Defense (Packaging Module)
6. Packaging for Food Safety

Graduate Certificate (Online, Four Courses Each)

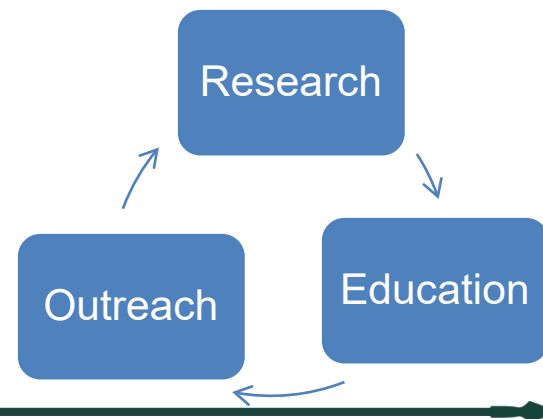
- Certificate in Food Fraud Prevention (Food Safety)

Master of Science in Food Safety (Online)

- www.online.FoodSafety.msu.edu

Certificate in International Food Law

- <https://www.canr.msu.edu/iflr/>



Defining Food Fraud

- Action: **Intentional** deception for economic gain using food
 - Consistent with GFSI, EC/EU, UK, ISO, and others...
 - Including the sub-category of “Economically Motivated Adulteration” or EMA
 - Note: FDA currently defines EMA as a “substance” for “economic gain”
- Motivation: Economic Gain
 - “Food Defense” motivation is traditionally harm or terror
 - “Food Defense (FDA/FSMA-IA)” is narrowed to “wide-scale human health harm”
- Effect:
 - Economic **Threat**
 - Public Health **Vulnerability or Threat**

Examples

- Horsemeat in ground beef
- Peanut Corporation selling known contaminated product
- Diluted or extra virgin olive oil
- Melamine in pet food and infant formula
- Over-icing with unsanitary water

- Unauthorized unsanitary repackaging (up-labeling or origin-laundering)
- Cargo Theft reintroduced into commerce/ Stolen products
- Expired product date code tampering or “refreshing”

Reference: Spink & Moyer (2011). Defining the Public Health Threat of Food Fraud, Journal of Food Science

Terminology (Types of Fraud)

Table 2: Table: Food Fraud Types, Definitions, and Examples (adapted from (Spink and Moyer 2011, Spink 2013, SSAFE Organization 2015, PWC Price Waterhouse Cooper 2016, GFSI 2017, Spink, Ortega et al. 2017))

- Dilution
- Substitution
- Concealment
- Unapproved Enhancements
- Mislabeling/ Misbranding
- Mislabeled
- Gray Market Production/ Theft/ Diversion
- Counterfeiting (IPR)



Tackling Food Fraud Through Food Safety

May 2018

APPENDIX: DETAIL OF TYPE OF FRAUD, AND EXAMPLES

Table 2: Table: Food Fraud Types, Definitions, and Examples (adapted from (Spink and Moyer 2011, Spink 2013, SSAFE Organization 2015, PWC PriceWaterhouseCooper 2016, GFSI 2017, Spink, Ortega et al. 2017))

GFSI (1) Type of Food Fraud	Definition from SSAFE (2)	Examples from GFSI FFTT (3)	General Type of Food Fraud
Dilution	The process of mixing a liquid ingredient with high value with a liquid of lower value.	<ul style="list-style-type: none"> Watered down products using non-potable / unsafe water Olive oil diluted with potentially toxic tea tree oil 	Adulterant-substance (Adulterant)
Substitution	The process of replacing an ingredient or part of the product of high value with another ingredient or part of the product of lower value.	<ul style="list-style-type: none"> Sunflower oil partially substituted with mineral oil Hydrolyzed leather protein in milk 	Adulterant-substance or Tampering
Concealment	The process of hiding the low quality of a food ingredients or product.	<ul style="list-style-type: none"> Poultry injected with hormones to conceal disease Harmful food colouring applied to fresh fruit to cover defects 	Adulterant-substance or Tampering
Unapproved enhancements	The process of adding unknown and undeclared materials to food products in order to enhance their quality attributes.	<ul style="list-style-type: none"> Melamine added to enhance protein value Use of unauthorized additives (Sudan dyes in spices) 	Adulterant-substance or Tampering
Mislabelling/ Misbranding	The process of placing false claims on packaging for economic gain.	<ul style="list-style-type: none"> Expiry, provenance (unsafe origin) Toxic Japanese star anise labeled as Chinese star anise Mislabeled recycled cooking oil 	Tampering
Grey market production/ theft/diversion	Outside scope of SSAFE tool.	<ul style="list-style-type: none"> Sale of excess unreported product, Product allocated for the US market appearing in Korea 	Over-run, Theft, or Diversion (4)
Counterfeiting (IPR)	The process of copying the brand name, packaging concept, recipe, processing method etc. of food products for economic gain.	<ul style="list-style-type: none"> Copies of popular foods not produced with acceptable safety assurances Counterfeit chocolate bars 	Counterfeiting (IPR)

Notes:
 (1) GFSI – Global Food Safety Initiative
 (2) SSAFE – Safe Secure and Affordable Food For Everyone
 (3) GFSI FFTT – Global Food Safety Initiative: Food Fraud Think Tank
 (4): Gray Market -- a market employing irregular but not illegal methods; Theft -- something stolen; Diversion/ Parallel Trade -- the act or an instance of diverting straying from a course, activity, or use

TACKLING FOOD FRAUD THROUGH FOOD SAFETY MANAGEMENT SYSTEMS – MAY 2018

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Referenced
and Cited by
FDA/Ostroff
4/ & 10/2017

The Food Risk Matrix

Prevent by Understanding the Motivation

Food Quality	Food Fraud EMA	Motivation Gain: Economic
Food Safety	Food Defense Wide-scale Terrorism	Harm: Public Health, Economic, or Terror
Unintentional	Intentional	
Action		

Source: Adapted from: Spink (2006), The Counterfeit Food and Beverage Threat, Association of Food and Drug Officials (AFDO), Annual Meeting 2006; Spink, J. & Moyer, DC (2011) Defining the Public Health Threat of Food Fraud, Journal of Food Science, November 2011

Audit Non-Conformance – results and warnings...

QUARTERLY UPDATE

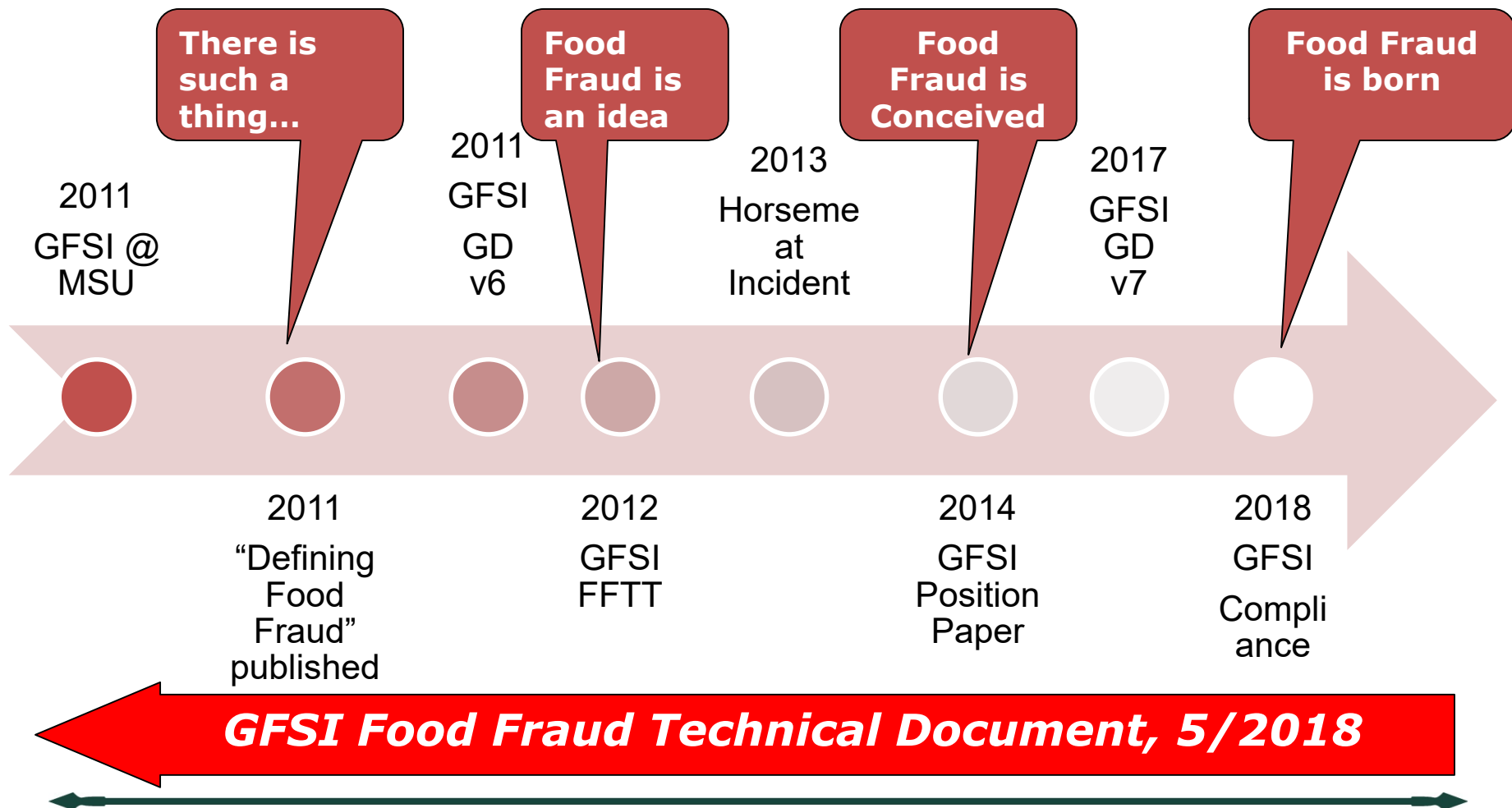
2018 **4Q**

HOT TOPIC

GFSI FF Technical Document



GFSI History of Food Fraud Prevention



GFSI Announcement 5/9/2018

- Food fraud review:
- Blog, Technical Report



http://www.mygfsi.com/files/Technical_Documents/201805-food-fraud-technical-document-final.pdf

GFSI Issue 7 Published Food Fraud Terms



FSM AI 21 Food fraud vulnerability assessment

- The standard shall require that **the organisation** has a **documented food fraud vulnerability assessment procedure** in place to identify potential vulnerability and prioritise food fraud mitigation measures.

FSM AI 22.1 Food fraud mitigation plan

- The standard shall require that **the organisation** has a **documented plan** in place that specifies the measures the organisation has **implemented to mitigate** the public health risks from the **identified food fraud vulnerabilities**.

Every 'vulnerability' does **NOT** need a control plan.

FSM AI 22.2 Food fraud mitigation plan

- The standard shall require that **the organization's** Food fraud mitigation plan **shall cover the relevant GFSI scope** and shall be supported by the organisation's Food Safety Management System.



References and Resources

REFERENCES

- GFSI Position Paper (2014)
- GFSI Benchmarking Document, V7.0 (2017)
- GFSI Benchmarking Documents, V7.2 (2018)
- GFSI, Global Food Safety Initiative (2014b). Food Fraud – Threats & Impact – an Industry Perspective, Presented by Neil Marshall for GFSI, EU Food Integrity Project - Food Authenticity Technology Conference, UK Department for Environment, Food and Rural Development (DEFRA), York, England

OTHER RESOURCES

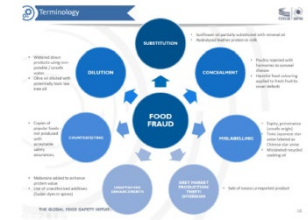
- Food Fraud Overview and History [includes the history of the GFSI Food Fraud Think Tank, Position Paper, and inclusion in the GFSI Benchmarking Document], Presented by John Spink, Food Fraud Session, GMA Annual Conference, Tokyo, 2018, URL (5-minutes): https://www.youtube.com/edit?o=U&video_id=mg67m5c3ITE
- Food Fraud Update and Terminology Survey, Presented by John Spink, GMA Science Forum 2018, URL (21-minutes): <https://www.youtube.com/watch?v=IZNwilEz6fM&feature=youtu.be>

• OTHER RESOURCES

- Food Fraud Overview and History [includes the history of the GFSI Food Fraud Think Tank, Position Paper, and inclusion in the GFSI Benchmarking Document], Presented by John Spink, Food Fraud Session, GMA Annual Conference, Tokyo, 2018, URL (5-minutes):
https://www.youtube.com/edit?o=U&video_id=mg67m5c3ITE
- Food Fraud Update and Terminology Survey, Presented by John Spink, GMA Science Forum 2018, URL (21-minutes):
<https://www.youtube.com/watch?v=IZNwilEz6fM&feature=youtu.be>

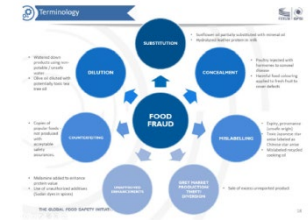


Terminology (Definitions)



Both definitions cover all types of fraud and all products and highlight that the motivation behind food fraud is intentional and economically driven, i.e. potentially linked to criminal activities and at least aiming to avoid detection.

- “Both(1) definitions cover *all types of fraud* and *all products* and highlight that the motivation behind food fraud is intentional and economically driven, i.e. potentially linked to criminal activities and at least aiming to avoid detection.”
- (1): GFSI Position paper on food fraud (2014) and Benchmarking Document (2017)



Both definitions cover all types of fraud and all products and highlight that the motivation behind food fraud is intentional and economically driven, i.e. potentially linked to criminal activities and at least aiming to avoid detection.

- “This implies that any plans and activities to mitigate, prevent or even understand the risks associated with food fraud should consider *an entire company’s activities*, including *some that may not be within the traditional food safety or even HACCP scope*, applying methods closer to criminal investigation.”

Terminology: “**The standard...**”

- “**The standard** shall...” refers to the Food Safety Management System:
 - BRC, FSSC22000, IFS, SQF, etc.

The requirements refer to the "The Organization": While the traditional HACCP-type food safety approach is applied at manufacturing facilities, these operate within the overall organization. The food fraud vulnerabilities are company-wide and thus the food fraud scope is company-wide.

The different steps required should be "Documented": Like other quality management and HACCP-type programs, the activities must be documented to both support continuous improvement and confirm compliance.

There is a requirement for a separate "vulnerability assessment" and a "mitigation plan" for food fraud. Under the overall food safety management system, this requires separate assessment for food safety, food fraud and for food defence.

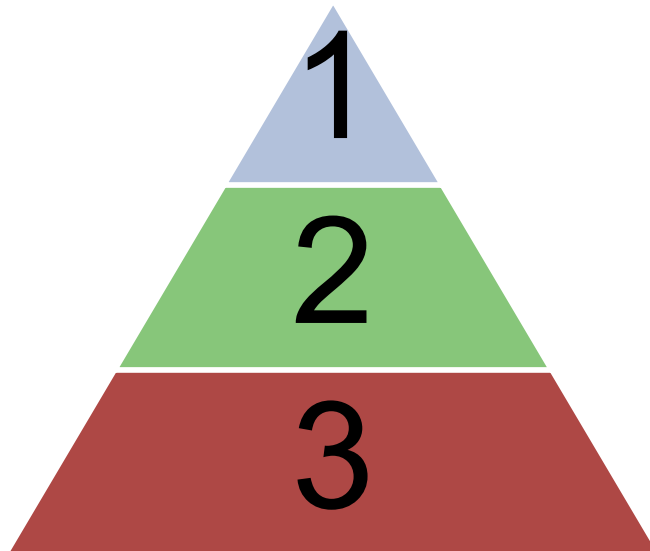
Terminology: “ “The Organization...”

- “The requirements refer to the “The Organization”: While the traditional HACCP-type food safety approach is applied at manufacturing facilities, these operate within the overall organization. The food fraud vulnerabilities are company-wide and thus the food fraud scope is company-wide.”
 - MSU Note: Food Fraud is more of a top-down assessment than Food Safety or Food Defense that is facility-based hazards.

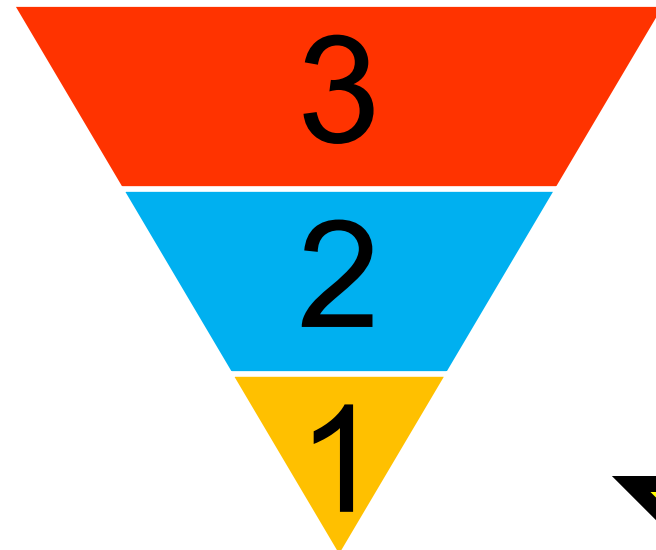


MSU: Level of Effort: Top-Down or Bottom-Up?

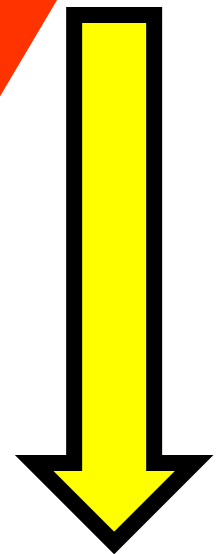
- Depends on process and root-cause
- Facility-based or enterprise-based?



Food Safety



Food Fraud



Terminology: All Vulnerabilities are ***not*** Hazards

² ISO definition from the Online Browsing Platform

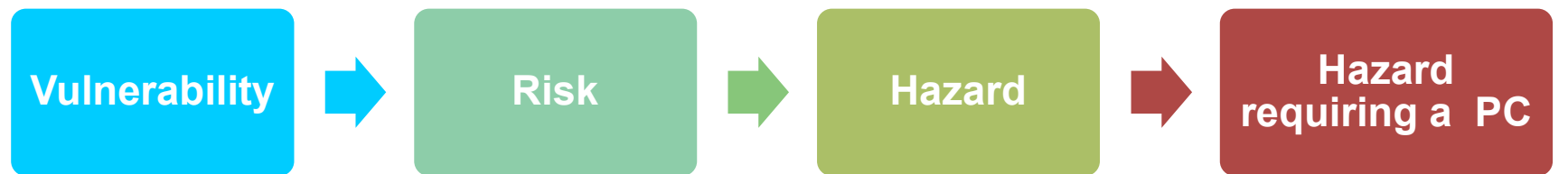
TACKLING FOOD FRAUD THROUGH FOOD SAFETY MANAGEMENT SYSTEMS – MAY 2018 6

- “While an “all hazards” assessment approach is important, all vulnerabilities are not risks, all risks are NOT hazards, and all hazards are NOT hazards that require a preventive control.”



What Requires a Control?

- A “vulnerability” is not always a “risk”
- A “risk” is not always a “hazard that requires a preventive control”
- Each “vulnerability” does not require a “preventive control” – ***but monitor***
- Reference: Spink, John, Ortega, David, Chen, Chen, and Wu, Felicia (IN PRESS). Food Fraud Prevention Shifts Food Risk Focus to Vulnerability, Trends in Food Science and Technology Journal, Volume 0, Number 0, Pages 00-00. [Accepted Feb 13, 2017] (ISI: 4.651, SJR 2.267)



MSU: Assess “Every” not “Each”

- The basic GFSI requirement is to address “every” or “all” vulnerabilities, not “each”
- ...yet...

AUDITING A VULNERABILITY ASSESSMENT PLAN AND A FOOD FRAUD MITIGATION PLAN

"During a food safety certification audit, conducted against GFSI recognised schemes, the auditor will review the documentation related to the vulnerability assessment process and confirm that a comprehensive control plan, as outlined in the [position paper] Appendix, has been developed and implemented by the company." ²

Auditing Guidance

- “ ‘During a food safety certification audit, conducted against GFSI recognised schemes, the auditor will review the documentation related to the vulnerability assessment process and *confirm that a comprehensive control plan, as outlined in the [position paper] Appendix, has been developed and implemented by the company.*’ ”
- “With this in mind, there is awareness that addressing food fraud is new and different for those being audited as well as the auditors:”
- “ ‘The *auditor is not expected to detect fraud or affirm that an anti-fraud program is capable of “preventing fraud”*. This approach is very much in line with the verification of a HACCP plan during the food safety audit.’² ”

Audit Depth

- “GFSI is aware that the harmonization and best practices are just now being developed and refined. *A new system that is less than a year old in implementation cannot be expected to be as robust, thorough, or detailed as a system such as HACCP that has been implemented for more than 25 years.* The most important step for the food industry is to start addressing food fraud, *and for auditors to start asking the basic questions* on how vulnerabilities were assessed and identified, and a strong mitigation plan thought through.”

Incoming Goods & Outgoing Goods - Key Points



- “All” not necessary “every” or “each”
 - *can cluster into groups... even very big groups*
- Include “Other” to address “all”
 - *admittedly a very broad category... it can be further refined later...*
- *Just get started... and complete an assessment*
 - *Identify future needs...*
 - *Getting to “point B” not all the way to “point Z”*

REVIEW: Food Fraud Compliance Requirements: Scope

“Food Fraud Compliance Requirements — The general compliance requirements for Food Fraud prevention are:

1. Conduct a Food Fraud Vulnerability Assessment (Y/N)
2. Written (Y/N)
3. Implement a Food Fraud Prevention Strategy (Y/N)
4. Written (Y/N)
5. Minimally conduct an annual Food Fraud Incident Review (Y/N)
6. Note: Address all types of Food Fraud (Y/N)
7. Note: Address all products from both incoming goods (e.g., ingredients) and outgoing goods (e.g., finished goods) through to the consumer.” (Y/N)

- Reference:
- Food Safety Magazine, Feb 2017, “*Food Fraud Vulnerability Assessment and Prefilter for FSMA, GFSI and SOX Requirements*”, <http://www.foodsafetymagazine.com/magazine-archive1/februarymarch-2017/food-fraud-vulnerability-assessment-and-prefilter-for-fsma-gfsi-and-sox-requirements/>
- New Food Magazine, Feb 2017: *Food Fraud Prevention – how to start and how much is enough?*, <http://www.newfoodmagazine.com/33890/new-food-magazine/past-issues/issue-1-2017/issue-1-2017-digital-version/>



Call to Action

1. Review the GFSI requirements
2. Review your current certification status AND report to see if the auditor asked the full set of questions.
3. Consider the “7 Questions” – if any “no” then get education on next steps.

MSU Engagement 2018

	Outcome	Benefit	Commitment
Graduate Course	Share your knowledge and set direction of research	Plus <i>Graduate Certificate in Food Fraud Prevention</i>	14 Weeks, online, May to August, ~\$2200
Executive Education	Share your knowledge and set direction of research	Develop the internal talent to support initiatives in the AC space, meet other thought leaders (“invitation only” sessions for brand owners)	2 Days on-campus (\$1950) 2019 dates TBD
Multi-Client Studies	Research the why’s of AC/D, understand underlying drivers	Uncovering the drivers may lead to new strategies to combat Counterfeiting	Teleconference Meetings with option for on-campus e.g. Veterinary and Animal Product Fraud
MOOC	Engage global network of Food Fraud thinkers..	Two, 2-hour on-line webinar format with assessment. Students earn an MSU “credential”.	Overview: Open; self-paced FF Audit Guide: Monthly FFVA & PS: Monthly Food Defense Audit Guide: Monthly

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- **Queens's University Belfast (UK):** Professor & Director Christopher Elliott, Dr. Moira Dean, Dr. Michael Hollis
- **MSU Online Master's of Science in Food Safety:** Director Melinda Wilkins, Ex-Director Julie Funk, Kristi Denbrock, Heather Ricks, Peggy Trommater, Heidi Chen, Dr. Gary Ades, Chair Ray Goer
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- **MSU Criminal Justice:** Dr. Jeremy Wilson, Director Ed McGarrell, Dr. Justin Heinonen, Roy Fenoff, Zoltan Fejas, Barbara Sayre, and Sara Heeg
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- **MSU College of Law:** Dr. Neil Fortin and Dr. Peter Yu
- **MSU Libraries:** Anita Ezzo, Nancy Lucas, Kara Gust
- **MSU International Programs:** Dr. Mary Anne Walker, Dr. John Whimms
- **State of Michigan's Ag & Food Protection Strategy Steering Committee:** Dr. John Tilden, Brad Deacon, Gerald Wojtala, Byron Beerbower
- **The Citadel:** Dr. Roy Fenoff



Discussion

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