

# Food Fraud

## *Do You Know What You are Eating?*

National Coalition for Food and Agriculture Research (C-FAR)  
Monday, May 9, 2011 / Noon to 1:00pm

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# Food Safety Modernization Act

- 11 Mentions of “Intentional Adulteration”
- Section 106. Protection against intentional adulteration
  - “103 (1) identify and evaluate known or reasonably **foreseeable hazards** that may be associated with the facility... (2) identify and evaluate hazards that may be **intentionally introduced**, including by **acts of terrorism**... (3) develop a **written analysis of the hazards**.”
  - “106 (b)(1) [HHS w/ DHS & USDA]... shall issue guidance documents related to protection against the intentional adulteration of food, including mitigation strategies or measures to guard against such adulteration as required under section 402 of the FD&C...

# MSU and Criminal Justice

- MSU
  - Original Land Grant School, 1855
  - 17 Degree Granting Departments
  - Programs include: Law, Medicine (3), Nursing, Engineering, Packaging, Supply Chain, Criminal Justice, Consumer Behavior, etc
  - 33k undergrads and 8k grad students
  - Active in 123 countries and highest rate of undergraduate intention studies
- School of Criminal Justice
  - Oldest continuous degree granting CJ program
  - 39 Faculty members with title of “Professor”
  - 12<sup>th</sup> largest undergrad enrollment at 648 (Finance is 1<sup>st</sup> at 1273 and Packaging is 22<sup>nd</sup> at 490)



# A-CAPPP Actions

- Member, Anti-Counterfeiting Medical Products Task Force, Interagency led by Department of Commerce, International Trade Administration, Health and Consumer Products, 12/2010+
- ISO/ US TAG, Chair – TC 247 Fraud Countermeasures and Controls, WG 2 Co-Chair Vocabulary
- USP Food Ingredient Intentional Adulteration Expert Panel DHS Import Food Vulnerability Assessment Team, SME for Food Fraud and Counterfeiting
- IAPRI Working Group Founding Chair, Product Protection and Anti-Counterfeiting
- Comments Federal Register and GAO Reports
  - FDA Open Meeting on Economically Motivated Adulteration, Presented “Defining Food Fraud & The Chemistry of the Crime,” 5/1/09, USDA/FDA Product Tracing Systems, 12/2009
  - Federal Register Comments: FD&C Act 505 D Pharmaceutical Security (4/09) and Anti-Counterfeiting Detection, 10/09, Draft Guidance on Physical-Chemical Identifiers for... Anti-Counterfeiting (PCIDs), 10/09
  - GAO: Quantifying the Economic Impact of Counterfeiting and Piracy, 7/09, Economically Motivated Adulteration Review, 2/11+

# Curriculum

## Graduate Courses (On-line, Three Credits)

- Anti-Counterfeit & Product Protection
- **Quantifying Food Risk (including Food Fraud)**
- Packaging for Food Safety
- Food Protection and Defense (Packaging Module)

## Certificate (On-line, Four Courses Each)

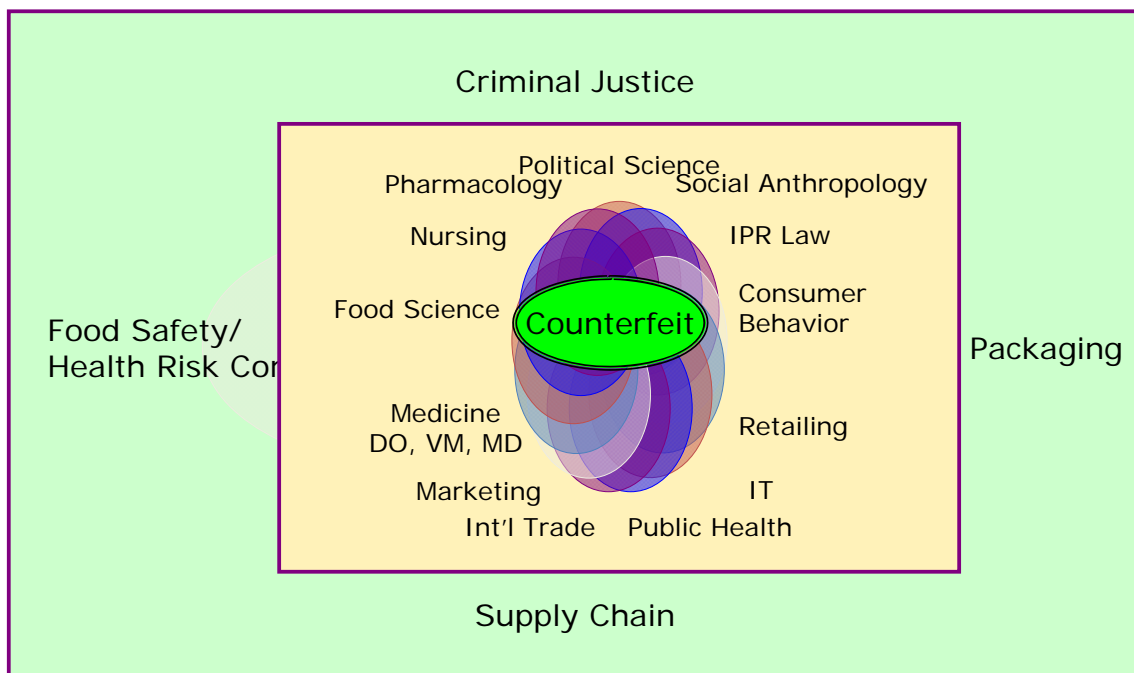
- Certificate in Counterfeit Medicines (Public Health)
- **Certificate in Food Fraud Prevention (Food Safety)**
- Certificate in Anti-Counterfeit Strategy (Criminal Justice)

# Media Interest



# WARNING: Counterfeiters Attend Anti-Counterfeit Conferences

## Extremely Interdisciplinary



# The Food Risk Matrix

## *Food Protection Umbrella*

The *Cause* leading to the *Effect* of Adulteration

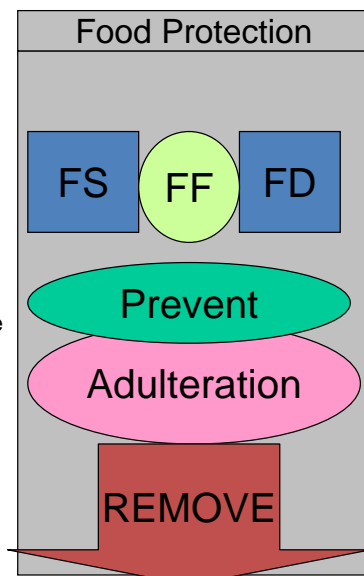
Food Quality	Food Fraud <sup>(1)</sup>	Motivation  Gain: Economic
Food Safety	Food Defense	Harm: Public Health, Economic, or Terror
Unintentional	Intentional	
<b>Action</b>		

(1) Includes Subset components of Economically Motivated Adulteration and Food Counterfeiting  
 Source: Adapted from: Spink (2006), The Counterfeit Food and Beverage Threat, Association of Food and Drug Officials (AFDO), Annual Meeting 2006

# FDA Food Protection Plan

- **Prevention**
  - increasing corporate responsibility to prevent food-borne illnesses
  - identifying food vulnerabilities and assess risks
  - expanding the understanding and use of effective mitigation measures
- **Intervention**
  - focus inspections and sampling based on risk
  - enhance risk-based surveillance
  - improve the detection of food system "signals" that indicate contamination
- **Response**
  - improve immediate response
  - improve risk communications to the public, industry and other stakeholders

(FDA Food Protection Plan, Fact Sheet, 2008)



# The NCFPD Grant

- FDA Open Meeting on EMA May 2009
- NCFPD Grant July 2009
- Food Fraud, broader than Economically Motivated Adulteration
- No current definition...
- Develop a “Backgrounder”
  - Extensive research
  - Extensive peer-review
  - Extensive live presentation testing
- Develop web and webinar content
- Added a peer-review journal article, under final review by the Journal of Food Science

Backgrounder: Defining the Public Health Threat of Food Fraud  
[In partial fulfillment of a NCFPD grant]  
John Spink and Douglas C Moyer  
Anti-Counterfeiting and Product Protection Program (A-CAPP)  
Michigan State University  
Ma

## What is Food Fraud?

is Food Fraud?  
Food fraud is a collective term used to encompass the deliberate and intentional substitution, addition, tampering, or misrepresentation of food, food ingredients, or food packaging; or false or misleading statements made about a product, for economic gain. Food fraud is a broader term than either the economically motivated adulteration (EMA) defined by the Food and Drug Administration (FDA) or the more specific general concept of food counterfeiting. Food fraud may not include “adulteration” or “misbranding,” as defined in the Food, Drug, and Cosmetic Act (FD&C Act), when it involves acts such as tax-avoidance and smuggling. The economic motivation behind food fraud is distinctly different from those for food safety, food defense, and food quality. The *cause* of an event might be food fraud, but if a public health threat becomes involved, the *effect* is an adulterated product and a food safety incident. All of this is under the umbrella of food protection, which encompasses food fraud, food quality, food safety, and food defense.

What is Food Fraud?  
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as they apply to food), a product is considered adulterated

# Backgrounder Headings

- What is Food Fraud?
- What is Economically Motivated Adulteration?
- Food Regulatory Definitions of Adulteration and Misbranding
- What is the Food Risk Matrix?
- How Does Food Fraud Differ From Food Safety?
- How Does Food Fraud Differ From Food Defense?
- How Does Food Fraud Differ From Food Quality?
- How Does Food Fraud Differ From Food Protection?
- What is the Extent of the Food Fraud Problem?
- The Awareness of Food Fraud
- What Are The Types Of Food Fraud?
- What Are The Public Health Risks Associated With Food Fraud?
- Efficient Food Fraud Countermeasures?
- Why Is Criminology Important To Food Fraud?
- Why Is Supply Chain Management and Procurement Important To Food Fraud?
- Why Is Packaging Important To Food Fraud?
- What Are The Immediate Strategies for Food Fraud

# Food Fraud Incident Types

Food Fraud Incident Types

Term	Definition	Example
Adulteration	A component of the finished product is fraudulent	Melamine added to milk
Tampering	Legitimate product and packaging are used in a fraudulent way	Changed expiry information, product up-labeling, etc.
Over-run	Legitimate product is made in excess of production agreements	Under-reporting of production
Theft	Legitimate product is stolen and passed off as legitimately procured	Stolen products are co-mingled with legitimate products.
Diversion	The sale or distribution of legitimate products outside of intended markets	Relief food redirected to markets where aid is not required
Simulation	Illegitimated product is designed to look like but not exactly copy the legitimate product	"Knock-offs" of popular foods not produced with same food safety assurances
Counterfeiting	Intellectual Property Rights infringement, which could include all aspects of the fraudulent product and packaging being fully replicated	Copies of popular foods not produced with same food safety assurances

Source: Spink J, and Moyer DC, (2011) Defining the Public Health Threat of Food Fraud, [working paper]

GAO Seafood Fraud Report Detail (1)			New Comment (2)
Fraud Type	Description	Cause and Motivation	Potential Public Health Food Risk
Transshipment	Transferring cargo among different transports and countries	Avoid tariffs or anti-dumping duties	Compromised storage, handling, and traceability (in the event of a recall).
Over-treating	Adding more ice or water than allowed by regulation	Increase profit by including more weight for ice than fish	Water may include pathogens or chemicals (i.e. if ice was made from pond water)
Species substitution	Substituting less costly species and misrepresenting them as more expensive species	Increase profits due to cost differential	Misrepresented species may be toxic or cause allergic reactions,
Short-weighting	Package labels state weights higher than packaged contents	Increase profits due to weight differential	None
Other mislabeling or misrepresentation	Misrepresenting country of origin, ingredients, etc.	Generally avoid costs and maximize profits	Undeclared allergens, toxins from banned locals (e.g. ciguatoxin-prone reefs), weight increased added through other unknown materials etc.

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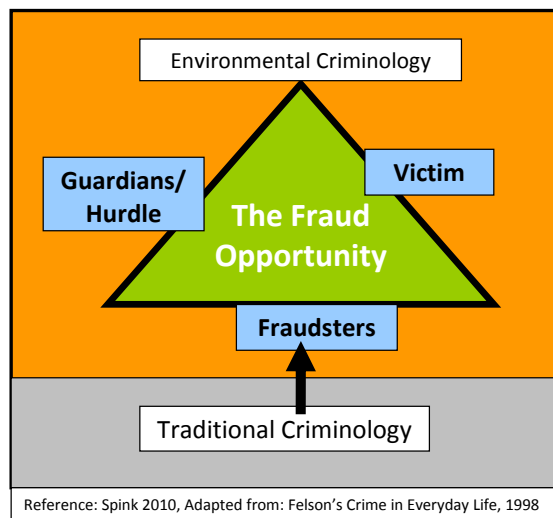
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## The Chemistry of the Crime

### The Crime Triangle/ Opportunity

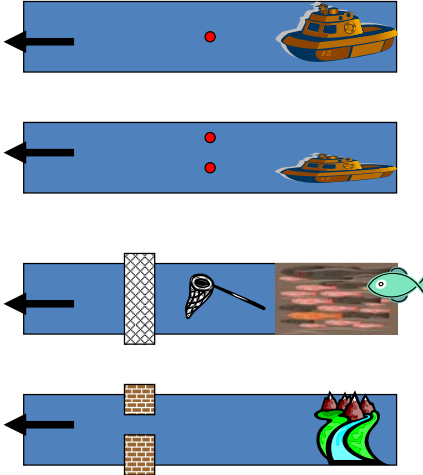
- Likely Offender
  - (Criminal/ Fraudster)
- Suitable Target
  - (Victim)
- Absence of a Capable Guardian
  - (Guardian/Hurdle)

(Source: Adapted from Felson, 1998)



***Are we disrupting the chemistry of the crime?***

# Adapting Countermeasures to Specific Attacks and Attackers



- Who are the bad guys?
- How do they attack?
- Who else is working against them?
- What is the simplest and most effective countermeasure?

## Application to Food

- Regardless of the cause of the food risk, food **adulteration** food is a food issue.
- Food safety, food fraud, and food defense can create food **adulteration** risks.
- *Economically motivated **adulteration** is economically motivated, but the food public health risks are probably more risky than the traditional food safety threats...*
- *...because the contaminants are unconventional...*
- *...we're not specifically looking for them.*

# A Strategic Solution to Food Fraud

- Monitoring all imported product is not practical.
  - Monitoring all international food manufacturing is not practical.
  - Focus on the root of the risk and actions...
    - *The chemistry of the crime*: Criminal, Victim, and Opportunity
  - The Strategy
    - Intelligence Gathering
    - Create a Public Forum
    - Create Awareness & Harmonization
- (Source: Spink, 2009, AAAS Conference)

# Our Next Steps

- Food Safety Summit Workshop on Food Protection (4/2011)
- Disseminate concepts: publish the backgrounder and journal article (Journal of Food Science/ Institute of Food Technologists, 5/2011)
- Institute of Food Technologist Workshop at Annual Meeting (7/2011)
- Additional assessments on the case studies, review of historical incidents, and economic impact of FF/EMA
- Risk assessment (with other product fraud and anti-counterfeiting)
- Early Warning System (pilot projects)
- Enable the shift to prevention (Public-Private Partnership)

# A-CAPPP Engagement

	Outcome	Benefit	Commitment
Graduate Course	Share your knowledge and set direction of research	Develop the internal talent to support Pharma in the AC space	14 Weeks, online, May to August, ~\$1500
Executive Education	Share your knowledge and set direction of research	Develop the internal talent to support Pharma in the AC space, meet other thought leaders (“invitation only” sessions for brand owners)	1.5 Days on-campus or on-site, ~\$1500 Jan 20-21* (* Invitation) July 19-20 Sept 7-8 QFR# Sept 22-23*# Oct 18-19*#
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 meeting, \$varies
Other Directed	Flexible, though concerns of FOIA.	Work to advance the overall body of scholarly	\$TBD, Varies

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# Acknowledgements

- **MSU NFSTC:** Dr. Scott Winterstein, Mr. Trent Wakenight, Ms. Kristi Gates, Dr. Kevin Walker, Ms. Sandy Enness, Ms. Jen Sysak, to name a few critical contributors and supporters.
- **MSU Food Safety Policy Center:** Dr. Ewen Todd
- **MSU School of Packaging:** Dr. Bruce Harte, Dr. Robb Clarke, Dr. Laura Bix, Dr. Paul Singh, Dr. Diana Twede, Dr. Gary Burgess, Dr. Harold Hughes, Dr. Mark Uebersax, and Dr. Joseph Hotchkiss
- **MSU Communication Arts/ Consumer Behavior:** Dr. Maria Lapinski and Dr. Nora Rifon
- **MSU Supply Chain Management:** Dr. Cheryl Speier, Dr. Ken Boyer, Dr. John MacDonald, and Dr. David Closs
- **MSU Criminal Justice:** Dr. Jeremy Wilson, Dr. Ed McGarrell, Dr. Justin Heinonen, Mr. Roy Fenoff, and Mr. Zoltan Fejas.
- **MSU College Social Science:** Dean Marietta Baba and Assoc Dean Chris Maxwell
- **MSU College of Law:** Dr. Neil Fortin and Dr. Peter Yu
- **MSU Veterinary Medicine:** Dr. Wilson Rumbelha and Dr. Dan Grooms
- **MSU Program in Public Health:** Dr. Michael Rip and Mr. Douglas Moyer
- **MSU Libraries:** Ms. Anita Ezzo, Ms. Nancy Lucas, and Ms. Kara Gust
- **MSU International Programs:** Dr. Mary Anne Walker, Dr. Kristine Geith, Dr. John Whimms
- **State of Michigan’s Ag & Food Protection Strategy Steering Committee:** Dr. John Tilden, Mr. Brad Deacon, and Mr. Gary Wojtala

# Links

- Backgrounder: Defining the Public Health Threat of Food Fraud (to be posted by 5/31/2011)  
[http://www.a-cappp.msu.edu/food\\_fraud.html](http://www.a-cappp.msu.edu/food_fraud.html)
- Spink, J. (2011). The Challenge of Intellectual Property Enforcement for Agriculture Technology Transfers, 183 Additives, Raw Materials, and Finished Goods against Product Fraud and Counterfeiters, *Journal of Intellectual Property Rights*  
<http://nopr.niscair.res.in/handle/123456789/11577>
- FDA Open Meeting on Economically Motivated Adulteration, May 2009  
<http://www.fda.gov/NewsEvents/MeetingsConferencesWorkshops/ucm163619.htm>
- GMA, Consumer Product Fraud  
<http://www.gmaonline.org/downloads/research-and-reports/consumerproductfraud.pdf>

# Links - Media

- [Is it the real thing?](#) *Independent* [London, England] 10 Feb. 2011: 14. (Quoted about Food Fraud)  
<http://www.independent.co.uk/life-style/food-and-drink/features/with-fraud-on-the-rise-do-you-know-the-real-origin-of-your-food-2209687.html>
- Layton, L. (2010). [At US Dinner Tables, The Food May Be A Fraud](#), *The Washington Post*, Washington, DC, March 30, National Edition, Section 1, Page A01. (Quoted about Food Fraud. This was picked up by over 4,000 news agencies including the Seattle Times and Dallas Morning News.)  
[http://www.washingtonpost.com/wp-dyn/content/article/2010/03/29/AR2010032903824\\_pf.html](http://www.washingtonpost.com/wp-dyn/content/article/2010/03/29/AR2010032903824_pf.html)
- Clifford, S. (2010). [In A Downturn, Even Knockoffs Go Downscale](#), *The New York Times*, Sunday, National Edition, Section 1, Page A01. (Quoted about product counterfeiting. This was picked up by over 7,000 news agencies.)  
[http://www.nytimes.com/2010/08/01/business/economy/01knockoff.html?\\_r=3&scp=1&sq=spink&st=cse](http://www.nytimes.com/2010/08/01/business/economy/01knockoff.html?_r=3&scp=1&sq=spink&st=cse)
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<http://articles.latimes.com/2010/feb/19/business/la-fi-tomato-scandal19-2010feb19>
- Interlandi, J. (2010). [The Fake Food Detectives](#). *Newsweek* (on-line). (Quoted and article about the researcher and program.)  
<http://www.newsweek.com/2010/02/07/the-fake-food-detectives.html>

# Discussion

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