Food Ingredient and Dietary Supplement Fraud Prevention and the Global Food Safety Initiative

US Pharmacopeia Workshop on Economically Motivated Adulteration of Food Ingredients and Dietary Supplements

USP Headquarters – September 27, 2013 – 2:00 to 2:30pm

John Spink, PhD
Director, Food Fraud Initiative

www.FoodFraud.MSU.edu -- Twitter @FoodFraud and #FoodFraud
Curriculum

**Graduate Courses** (Online, Three Credits)
- Anti-Counterfeit & Product Protection (Food Fraud)
- Quantifying Food Risk (including Food Fraud)
- Food Protection and Defense (Packaging Module)
- Packaging for Food Safety

**Certificate** (Online, Four Courses Each)
- Certificate in Food Fraud Prevention (Food Safety)

**Graduate Degree** (Online)
- Master of Science in Food Safety

**MOOC – Food Fraud Overview** – Nov 12 & 19
**Executive Education – Food Fraud** – Oct 22 & 23
WARNING

Counterfeiters attend Anti-Counterfeiting Conferences
• Food Safety Magazine, October 2013
• “The time to act on EMA is now. As I’ve heard at conferences and events ‘if not now, then when; if not us; then who.’”
• “Who will draw a line in the sand?” Daniel Fabricant, PhD, Division of Dietary Supplements Program, CFSAN, FDA at USP EMA Workshop, 9/26/13
• Define the foundation, terminology, and prevention.
Defining the Public Health Threat of Dietary Supplement Fraud

Virginia M. Wheatley and John Spink

Abstract: Adverse health events resulting from using dietary supplements—have received increased attention in the media. This has led to the belief that this issue represents a significant public health threat. Due to a number of factors, dietary supplement fraud is extensive in the market. DSF is a type of product fraud, as is fraud, and it occurs in many segments of the market. DSF is not only costly to the consumer, but also harmful to the consumer. DSF is a greater public health threat than traditional food fraud, and the crime triangle depicts the relationship between fraudsters and established hurdles to fraud. The purpose of this study is to describe the public health threat of DSF, and to focus on altering current intervention and regulatory strategies in a prevention-based approach.

Keywords: counterfeiting, dietary supplement, economically motivated adulteration, food fraud, public health

Practical Application: Dietary supplement fraud, including the more defined subcategory of economically motivated adulteration, is a food protection threat that has not been defined or holistically addressed. One autonomous food protection category is food defense—protection from attack—which became a public and private priority after the terrorist attacks of September 11, 2001. There is growing awareness that attacks for economic gain is growing in awareness and regulatory focus to the point that product fraud may also become an autonomous concept. This research represents a starting point for defining dietary supplement fraud and identifying the public health risks.

• Define dietary supplement fraud
• Define the public health threat
• Define prevention focus
Defining Food Fraud

• Action: Deception Using Food for Economic Gain
  – Including “Intentional Adulteration”

• Motivation: Economic Gain
  – Food Defense motivation is traditionally harm or terror

• 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
What is Food Fraud?

- Over-Runs
- Substitution
- Contaminant
- Grey Market/Theft/Diversion
- Counterfeiting
- Unapproved Enhancements
- Mislabeling
- Tampering

FD&C Act Adulterated Food

Source: Food Fraud Think Tank Presentation, GFSI, 10/2012
## The Food Risk Matrix

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

<table>
<thead>
<tr>
<th>Food Quality</th>
<th>Food Fraud(^{(1)})</th>
<th>Motivation</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Gain: Economic</td>
</tr>
<tr>
<td>Food Safety</td>
<td>Food Defense</td>
<td>Harm: Public Health, Economic, or Terror</td>
</tr>
<tr>
<td>Unintentional</td>
<td>Intentional</td>
<td>Action</td>
</tr>
</tbody>
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**Source:** Adapted from: Spink (2006), The Counterfeit Food and Beverage Threat, Association of Food and Drug Officials (AFDO), Annual Meeting 2007; Spink, J. & Moyer, DC (2011) Defining the Public Health Threat of Food Fraud, Journal of Food Science, November 2011
The Chemistry of the Crime

Detect
Deter
Prevent

Are we disrupting the Chemistry of the Crime?
Approaches to Prevent Food Fraud

- (Criminal) Science
- Risk Assessment
- Socio-Economic
- Inspection & Product Testing
- Audit & Certification
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 Guardians/Hurdles
- Detection > Deterrence > PREVENTION
- Food Fraud IS our Food industry responsibility
- The Strategy
  - Intelligence Gathering
  - Create a Public Forum
  - Create Awareness & Harmonization
    - FSMA, GFSI, ISO, USP
    - Food, Dietary Supplements, Drug, Medical Device, Cosmetics, Tobacco, etc
# MSU Engagement 2013

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<th>Outcome</th>
<th>Benefit</th>
<th>Commitment</th>
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<tr>
<td><strong>Graduate Course</strong></td>
<td>Share your knowledge and set direction of research</td>
<td>Develop the internal talent to support initiatives in the AC space</td>
<td>14 Weeks, online, May to August, ~$1500</td>
</tr>
<tr>
<td><strong>Executive Education</strong></td>
<td>Share your knowledge and set direction of research</td>
<td>Develop the internal talent to support initiatives in the AC space, meet other thought leaders (&quot;invitation only&quot; sessions for brand owners)</td>
<td>2 Days on-campus ($1950) June 19-20 September 10-11/12-13</td>
</tr>
<tr>
<td><strong>Multi-Client Studies</strong></td>
<td>Research the why’s of AC/D, understand underlying drivers</td>
<td>Uncovering the drivers may lead to new strategies to combat Counterfeiting</td>
<td>Teleconference Meetings with option for on-campus meeting, $varies</td>
</tr>
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Acknowledgements

- **MSU Online Master’s of Science in Food Safety:** Director Julie Funk, Kristi Denbrock, Heather Ricks, Peggy Trommater, Heidi Chen, Dr. Gary Ades
- **MSU Veterinary Medicine:** Dean Christopher Brown, Chair Ray Geor, Dr. Wilson Rumbeiha and Dr. Dan Grooms, Cindy Wilson
- **MSU Global:** Associate Provost/Executive Director Christine Geith, Jerry Rhead, Gwyn Shelle, Lauren Zavala, Associate Provost/EVP Dr. Karen Klomparens, Rashad Muhammad
- **MSU NFSTC:** Dr. Scott Winterstein, Trent Wakenight, Dr. Kevin Walker, Sandy Enness, Jen Sysak, Dr. Rick Foster, 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, Dennis Young, and Director Joseph Hotchkiss
- **MSU Communication Arts/Consumer Behavior:** Dr. Maria Lapinski and Dr. Nora Rifon
- **MSU Criminal Justice:** Dr. Jeremy Wilson, Director Ed McGarrell, Dr. Justin Heinonen, Roy Fenoff, Zoltan Fejas, Barbara Sayre, and Sara Heeg
- **MSU Supply Chain Management:** Dr. Cheryl Speier, Dr. Ken Boyer, Dr. John MacDonald, Chair David Closs, Dr. Stan Griffis, Dr. Judy Whipple
- **MSU College Social Science:** Dean Marietta Baba and Assoc Dean Chris Maxwell
- **MSU College of Law:** Dr. Neil Fortin and Dr. Peter Yu
- **MSU Program in Public Health:** Director Michael Rip and Douglas C Moyer
- **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, Gary Wojtala, Byron Beerbower
Food Fraud Concepts

• Does Traceability Really Help Fight Fraudsters?
• Food Fraud Criminal Cases…Keep your Boss Out of Handcuffs!
• Beware the Black Swans of Food Fraud!
• Rats! More Food Fraud. (No Really, Rat Meat!)
• Food Fraud Prevention is More Like Fighting Purse Counterfeiters than Controlling Microbes
• The Impact of the Horse Meat Scandal on the Food Industry
Discussion

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