



# Emerging Risks of a Global Food System

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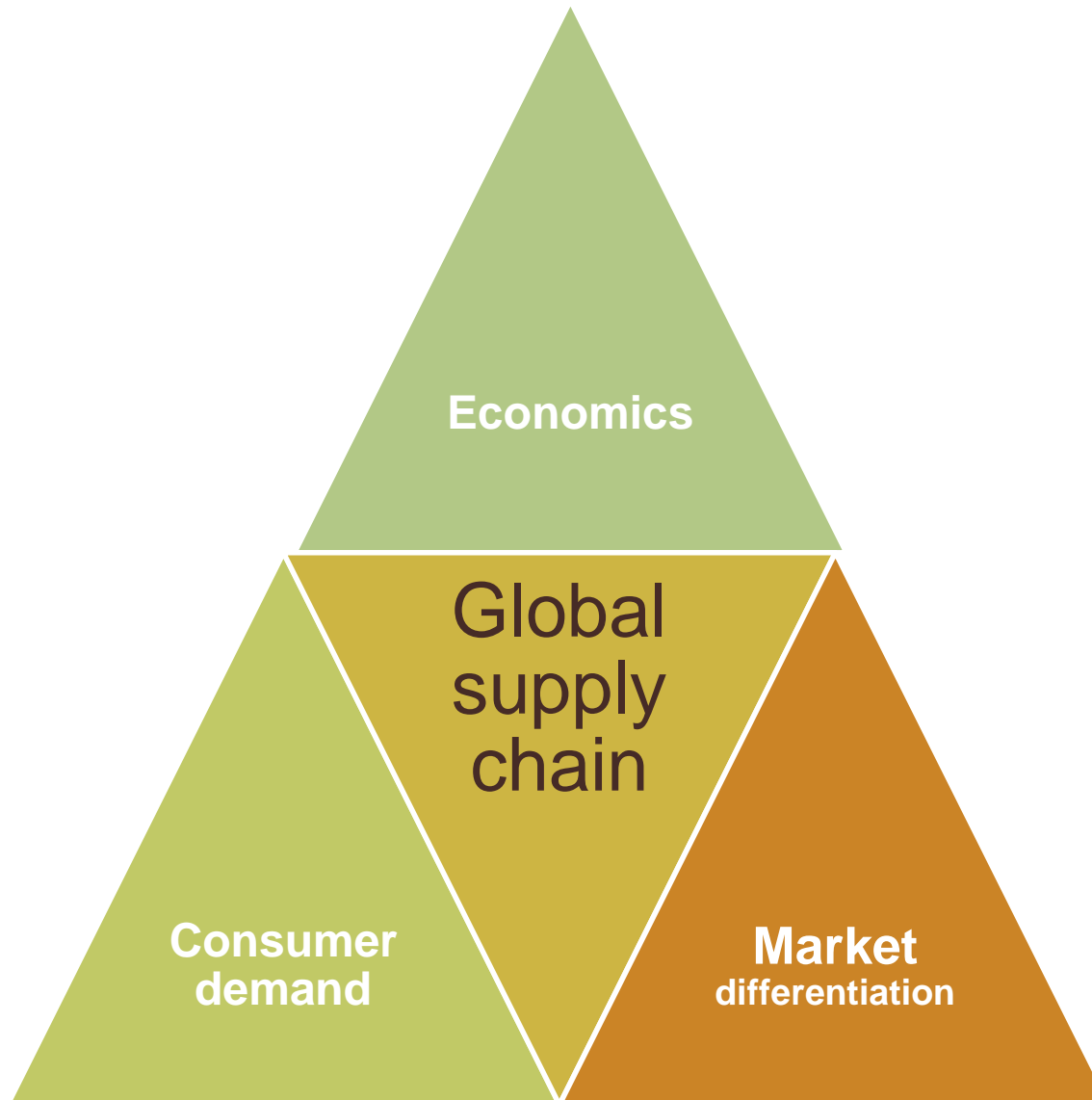


# Overview



- What is a “global food system”?
- Risk drivers
- Evaluating YOUR risk
- Managing risk
- Regulatory considerations





# Economics



- Cheaper raw materials
- Cheaper labor
- Monopolies in markets



# Consumer demand



- Population diversity = desire for “authentic” foods and flavors; changing pallet
- Year round availability
- Fair trade, organic, sustainable

<http://www.ers.usda.gov/data-products/us-food-imports.aspx#25420>

Avg volume growth 2004-13	% change
Live meat animals	-2.1
Meats	-1.4
Fish and shellfish	1.4
Dairy	-2.4
Vegetables	4.3
Fruits	3.6
Nuts	3.7
Coffee and tea	2.0
Cereals and bakery	8.7
Vegetable oils	12.1
Sugar and candy	24.3
Cocoa and chocolate	2.4
Other edible products	5.4
Beverages	3.7



# US food imports and exports

- US food, feed and bev exports \$136B in 2013
  - Soybeans
  - Meat/poultry
  - Wheat
- US imports \$115B food, feed and bev in 2013
  - Fish
  - Fruit
  - Vegetables

<http://www.census.gov/foreign-trade/Press-Release/2013pr/12/exh7.pdf>

<http://www.census.gov/foreign-trade/Press-Release/2013pr/12/exh8.pdf>



# Considerations/ Risks

- Media visibility
- Supply chain visibility
- Culture
- Different laws/regulations
- Environmental risks
- Geopolitical risks/ food defense



# Poll



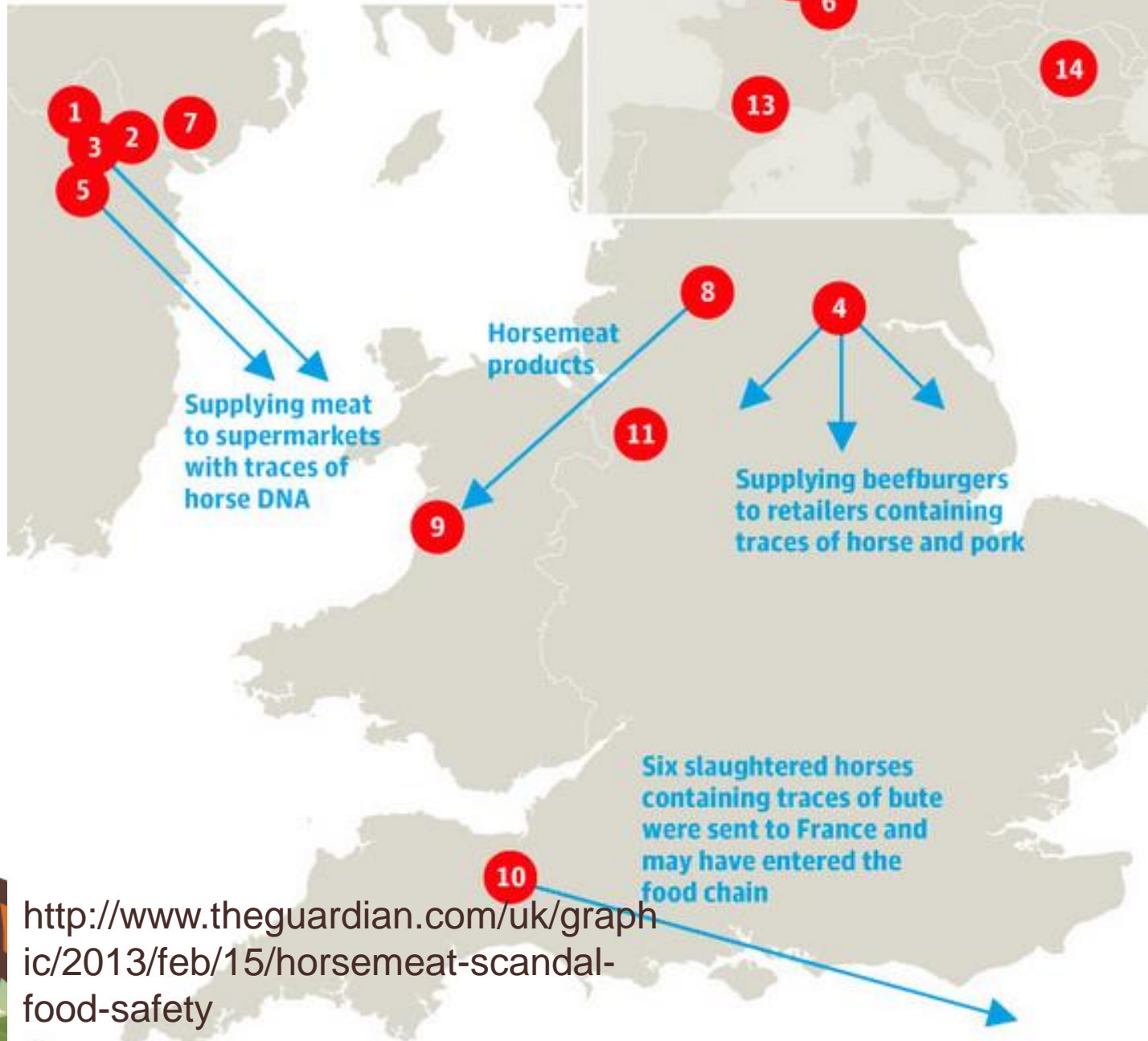
- How many heard of horse meat scandal?
- How many heard of OSI expired meat scandal in China?
- Would you have 10 years ago?
- 20 years ago?



# Supply Chain Visibility



were sold to Farmbox Meats Ltd in Aberystwyth, when they were in fact horse





# What does the horse meat scandal illustrate?

- Supply chain visibility issues
- Media's ability to spread the story
- Science's ability to respond

We are better able to detect contaminants today

We are more likely to hear about them



[www.wsj.com/articles/china-troubles-for-osi-reflect-broader-perils-for-business-1409594793](http://www.wsj.com/articles/china-troubles-for-osi-reflect-broader-perils-for-business-1409594793)

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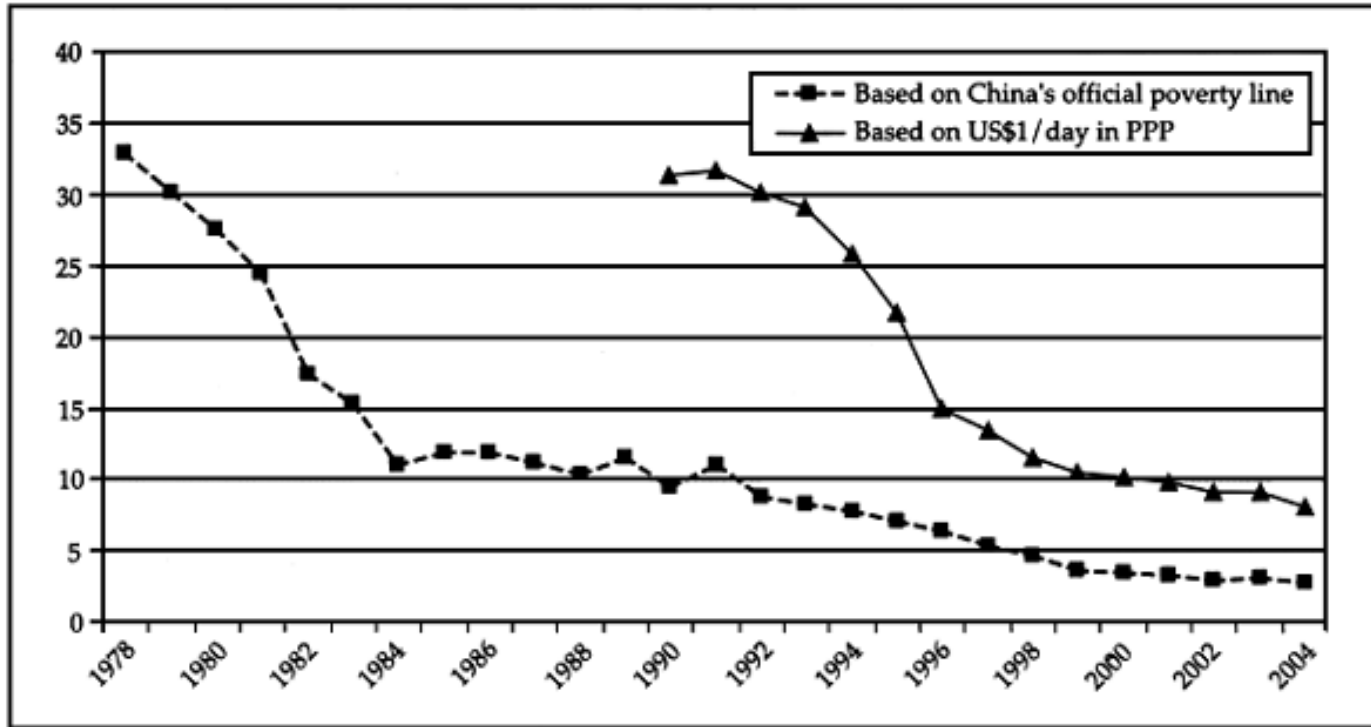
# After China Meat Scandal, Troubles for OSI Reflect Broader Perils for Business

Beijing's Scrutiny Increases as Bad Publicity's Effects Move Swiftly





# China



**Figure 1. Poverty incidence (%) in rural China, 1978–2004**

According to a publication by FAO (2002), the number of people who suffered from any sort of malnutrition in China declined from 193 million in 1990/1992 to 116 million in 1997/1999, or from 16 percent to 9 percent in total population.

# Culture



- Right vs wrong
- “if you’re stupid enough to fall for it...”



# Rules & Regulations (and enforcement)



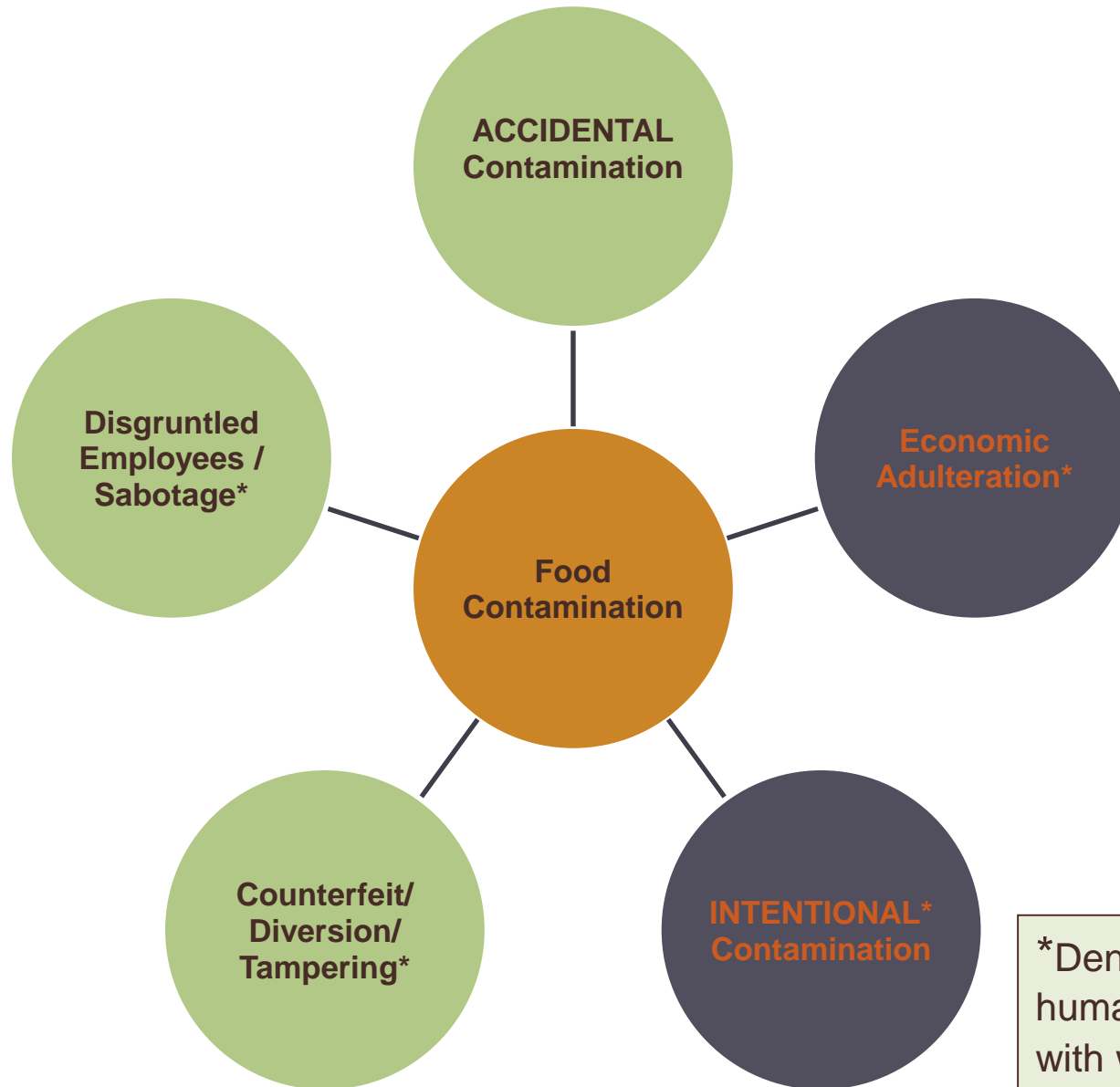
- US: FSMA 2011
- Canada: Safe Food for Canadians Act
- China: midway through “5 year plan”
  - local level
- India: Food Safety and Standards Act 2006
- United Arab Emirates: coordinating efforts of different Emirates and Agencies since 2005



Guidelines for Developing and Implementing a National Food Safety Policy and Strategic Plan



# The Spectrum of Food Contamination



\*Denotes mode of human interference with wrongful intent



# Past Events - Intentional



2010

**US uncovers plot to poison hotels and restaurants at multiple locations**

**iOLnews** 2007

**Beijing - The food poisoning of 203 hospital patients in northeast China was an intentional act, police said...**



2003

**61 Students felled by rat poison in central China**



2003

**Italy on alert for water poisoner**

**JOURNAL OF FORENSIC SCIENCES** 2010

**Arsenic Poisoning Caused by Intentional Contamination of Coffee at a Church Gathering**

**AUSTRALIAN** 2006

**350 Iraqi Policeman Suffer Food Poisoning**

2002

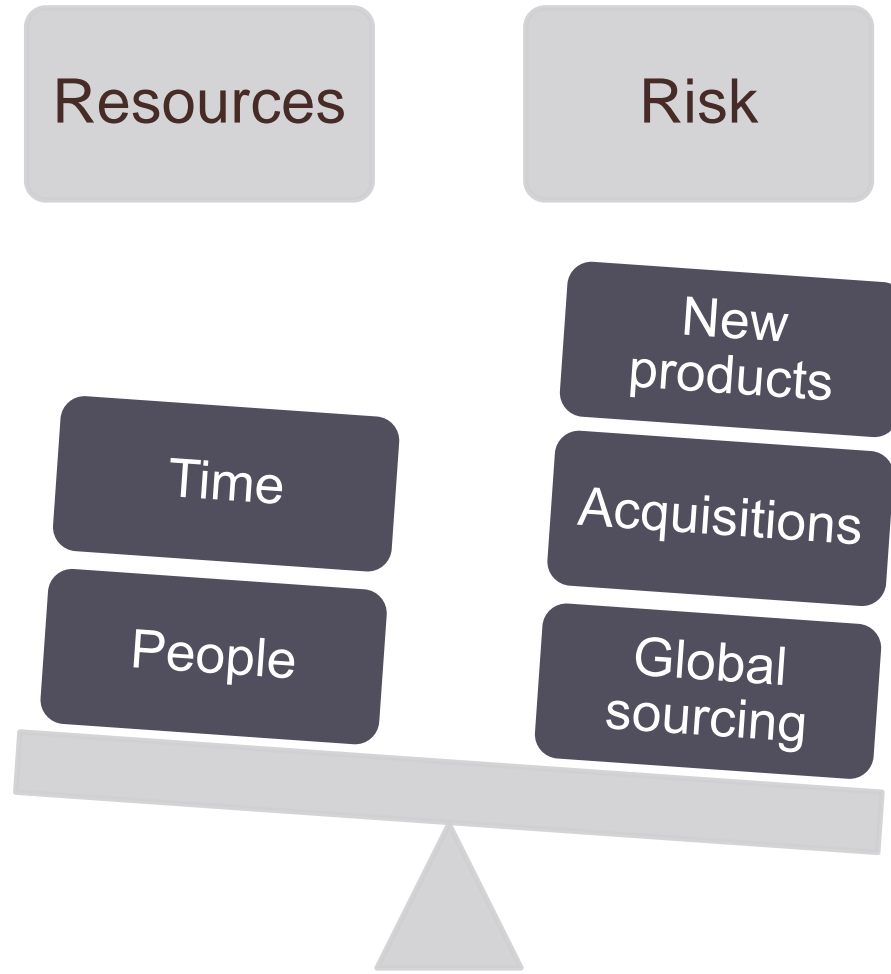
**THE INDEPENDENT**

**'Al-Qa'ida' attempt to poison Rome's water supply foiled**

**AP** Associated Press 2003

**Grocery store worker accused of poisoning beef**

# Efficiently using resources



# Evaluating Risk



Supplier  
risk

Product  
Risk

# Evaluating Risk

- By microbiological risk?
- By food use?
- By volume/sales?
- By country of origin?

# Evaluating Risk



## Product

- History of issues in the news
- Support growth, susceptible to contamination

## Supplier

- History of issues with you
- History of issues with regulators
- Facility policies, procedures, and controls

Laws and regulations  
Environmental conditions (pollution)

# Managing Risk

- Audits
- Certificates of Analysis
- Internal Testing
- Food safety document review
- Inclusion in mock recalls and traceability exercises





# Audits

- What does a score of 99 mean?
- How do you get a score of 99?





*The farm had passed a food safety audit by an outside contractor just days before the outbreak began. Eric Jensen, a member of the family that runs the farm, said in an e-mail that the auditor had given the packing plant a score of 96 points out of 100.*

<http://www.marlerblog.com/legal-cases/primuslabs-we-thought-he-jensen-farms-auditor-did-a-pretty-good-job/#.VPCHpvmjOm5>

Jim Munyon, president of AIB International, based in Manhattan, Kan., said he could not release details of the peanut company's audit because of confidentiality agreements. He said the company would not have received a superior rating if his auditors had seen the filth the federal government described.

“It would mean that we didn't see it on the day we were there,” he said of the rating. “What goes on the rest of the time, we don't know.”

[http://www.nytimes.com/2009/02/05/business/05-peanuts.html?\\_r=0](http://www.nytimes.com/2009/02/05/business/05-peanuts.html?_r=0)



# Audits



- What situations warrant a 2<sup>nd</sup> party audit (and at what frequency)?
- Should you require an audit to a GFSI benchmarked scheme?
- Do you review the full 3<sup>rd</sup> party audit report?



# Audits in the future

- SQF has started unannounced audits (1/3)
- IFS has unannounced hygiene audits
- Auditor competency

# CoA (and internal testing)

- Who sets the limits on the CoA?
- Is your spec right?
- Sampling method?
- Test method?
- Testing laboratory?
- Frequency of receiving CoA?
- Frequency of verifying the CoA?



# What does FDA think?



# You need supplier control!

Back to the one controlling the hazard



# FSMA



- Foreign or domestic, suppliers need to be controlled
  - Preventive Controls (human or animal food)
  - Foreign Supplier Verification Program



# FDA proposed supplier control requirements



1. Hazard evaluation
2. (Who controls the hazard?)
3. Supplier risks
4. Supplier verification program
5. Corrective actions
6. DOCUMENTATION



# Hazard Evaluation

- HACCP-like
- Done by “Qualified Individual”



# Supplier Risks

- Regulatory issues
- Their history with you
  - Testing history
  - Responsiveness to issues
- Other factors (e.g., transportation)







# Options for Verification

- Audits
  - Annual for SAHCODHA hazards
  - Other frequency
  - 2<sup>nd</sup> or 3<sup>rd</sup> party; “Qualified Auditor”
  - Or substitute a govt inspection in the past year
- Testing
  - Theirs
  - Yours
- Review of food safety program
- Other

# Bottom line

- A complex global supply chain has inherent risks
- Some risks are top of mind, some are not
  - Traceability
  - Food fraud
  - Food defense
- There are resources to help  
<http://www.gmaonline.org/resources/research-tools/technical-guidance-and-tools/>
  - Supply chain handbook





# Questions to Ponder

- How far back do you need to go?
- Climate and environmental change
  - Drought
  - Pollution
- Changing regulations (and enforcement)



# Thank you!



## Questions?

