

# AN ACADEMIC'S PERSPECTIVE ON THE FOOD INDUSTRY TO ENSURING SAFE FOODS



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- Contributing factors to ensuring **safe** food production and processing
- Role of public health: Importance of foodborne disease surveillance for the food industry
- Imported foods: An impending food safety crisis?



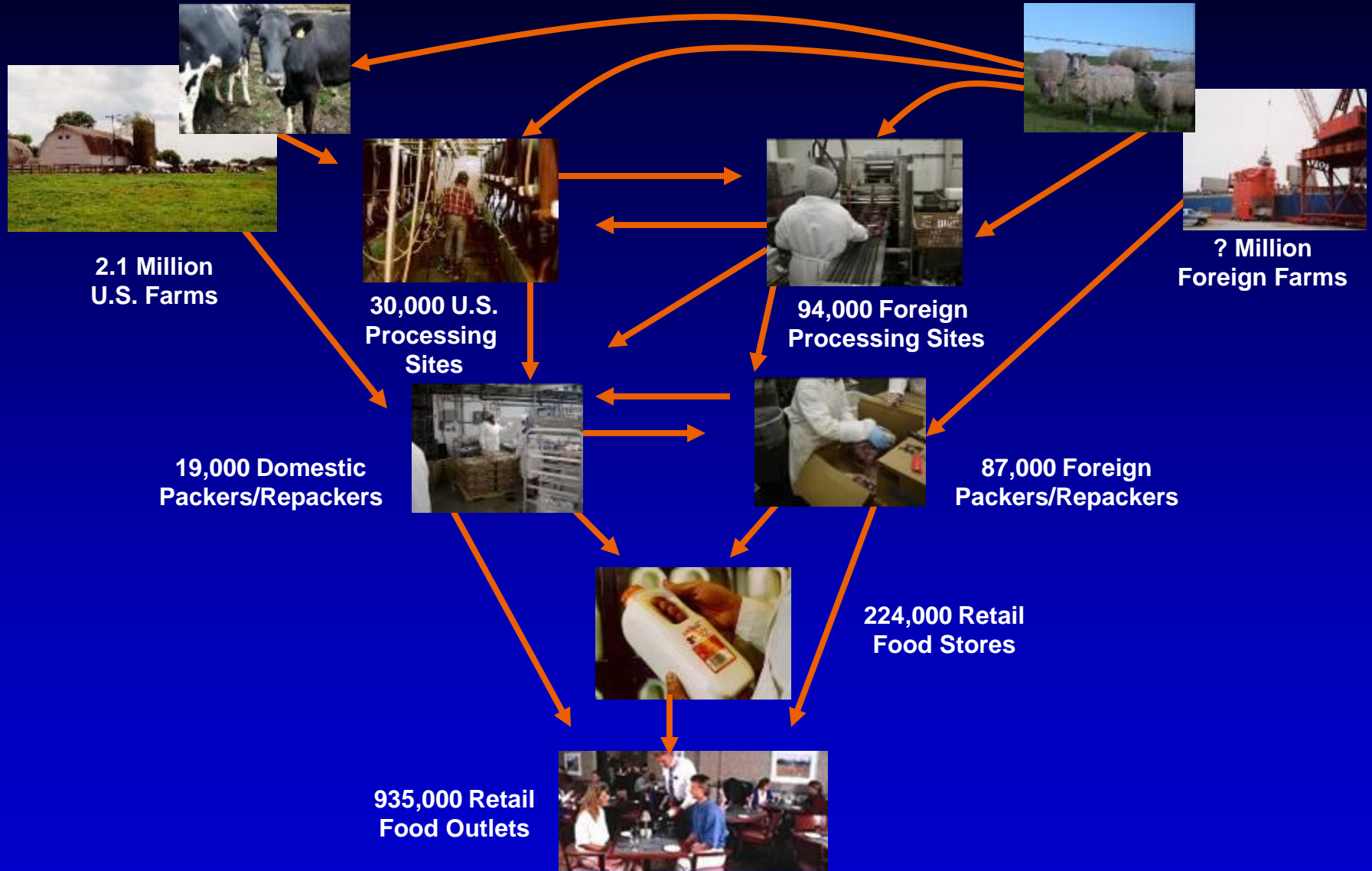
# Contributing Factors to Ensuring Safe Food Production and Processing

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- Structure of the U.S. food industry
- Federal food oversight and inspection
- Industry influences adversely affecting the safety of foods
- Public health



# Structure of the United States Food Industry



# Federal Food Oversight and Inspection

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- **USDA/Food Safety and Inspection Service**
    - ▲ Oversight of ~ 20% of foods consumed in the United States (meat, poultry, and processed eggs)
    - ▲ In 2006, 7,500 food safety inspectors at ~ 6,000 plants
  - **FDA**
    - ▲ Oversight of ~ 80% of foods consumed in the United States (everything that is not under the USDA purview)
    - ▲ In 2006, 640 full-time food safety inspectors for ~ 57,000 plants
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# Industry Influences Adversely Affecting the Safety of Foods

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- **Not all food producers and food processors are equally committed to producing safe foods**
    - ▲ Largely depends on a company's culture, which is frequently determined by administrative leadership (CEO and senior management)
  - **Primary driver is economics/low cost**
    - ▲ Major retailers are influential in cost cutting
    - ▲ Cost of ensuring safety of food is at risk
    - ▲ Major cost to manufacturing food is labor (~ 40%); developing countries have low labor costs
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# **Comment by a Major US Produce Processor**

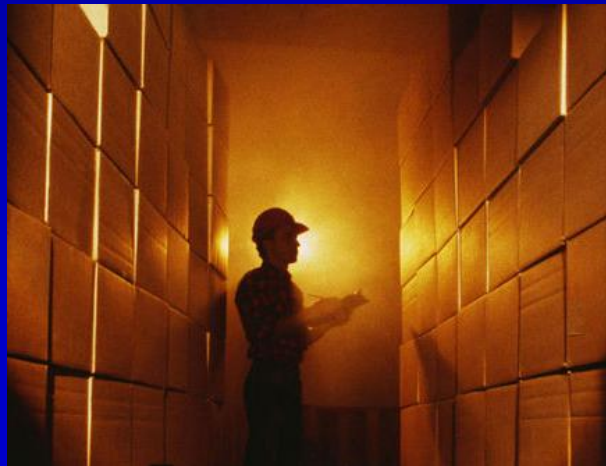
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- **The company's leadership has determined that it is more cost effective to handle recalls than it is to provide many of the food safety interventions**
    - ▲ Estimate the average cost of a recall is ca. \$1 million
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# Role of Public Health

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- Foodborne disease surveillance and outbreak investigations have been the primary driver to prompting foodborne disease prevention by the industry by
    - ▲ Identifying new foodborne **pathogens**
      - ◆ Example: *E. coli* O157 and hamburgers, 1982, 2 outbreaks, 43 cases
    - ▲ Identifying new risky **practices**
      - ◆ Example: Chopped garlic-in-oil and botulism, 3 cases in NY, unrefrigerated product, research determined need to acidify
    - ▲ Identifying **foods** not previously recognized as high risk
      - ◆ Examples: peanut butter, peanut paste, dried dog food, bagged fresh-cut spinach, bagged fresh-cut lettuce, cookie dough flour, imported pepper, and Chinese dried vegetable flavoring
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# **Role of Public Health (cont.)**

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- **Foodborne disease surveillance and outbreak investigations can further promote prevention efforts by the food industry by**
    - ▲ **Identifying “problem” suppliers and food processors**
    - ▲ **Identifying high-risk ingredients and foods to place greater emphasis on contamination prevention**
    - ▲ **Providing impetus to change company’s perspective and commitment to ensuring the safety of foods**
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“ *The foodborne disease surveillance system is to the food industry what radar is to automobile drivers – It is the “threat” of being caught that helps drive compliance with best safety practices.* ”



# Examples of Food Safety Monitoring/Surveillance Programs that Help Drive Food Safety Compliance

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- **USDA-AMS MDP (Microbiological Data Program)**
    - ▲ Monitors fresh produce for foodborne bacterial pathogens
      - ◆ Facing elimination because of produce industry pressure on Congress
  - **PulseNet**
    - ▲ VoluntaryNet (VolNet)
      - ◆ Supported by food industry leaders that are highly committed to raising the bar for safe foods
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**VoluntaryNet: A CDC - Food Industry -  
UGA Center for Food Safety  
Food Safety Collaboration**

# Purposes of VoluntaryNet

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- Help the food industry and CDC identify emerging trends or pathogens of concern and understand the public health significance of these pathogens in specific foods
  - Enable companies to perform better by conducting more thorough food safety risk assessments, with respect to food products, pathogens of concern, and country of origin
  - Enable CDC and state health departments to improve hypothesis generation for questionnaires/case-control studies used in the investigation of illness clusters and outbreaks (early detection)
    - ▲ Identify and control emerging public health problems early, protect public health, and limit potential damage to industry
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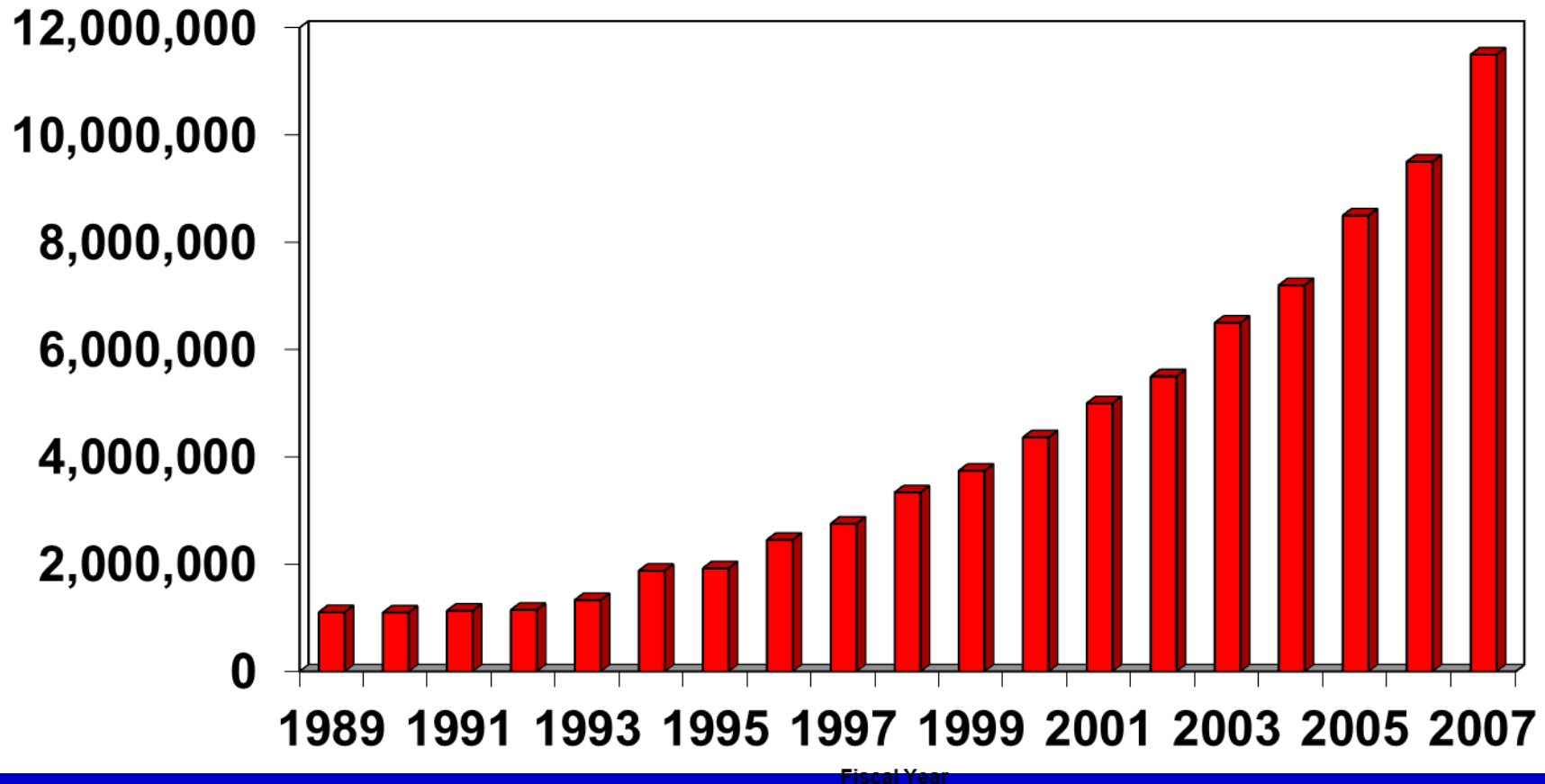
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# Globalization of Food Industry

FDA Import Entries Foods Only



Bob Buchanan, FDA, 2008

2011 - Estimated 24 million food import entries (FDA Commissioner Margaret Hamburg)



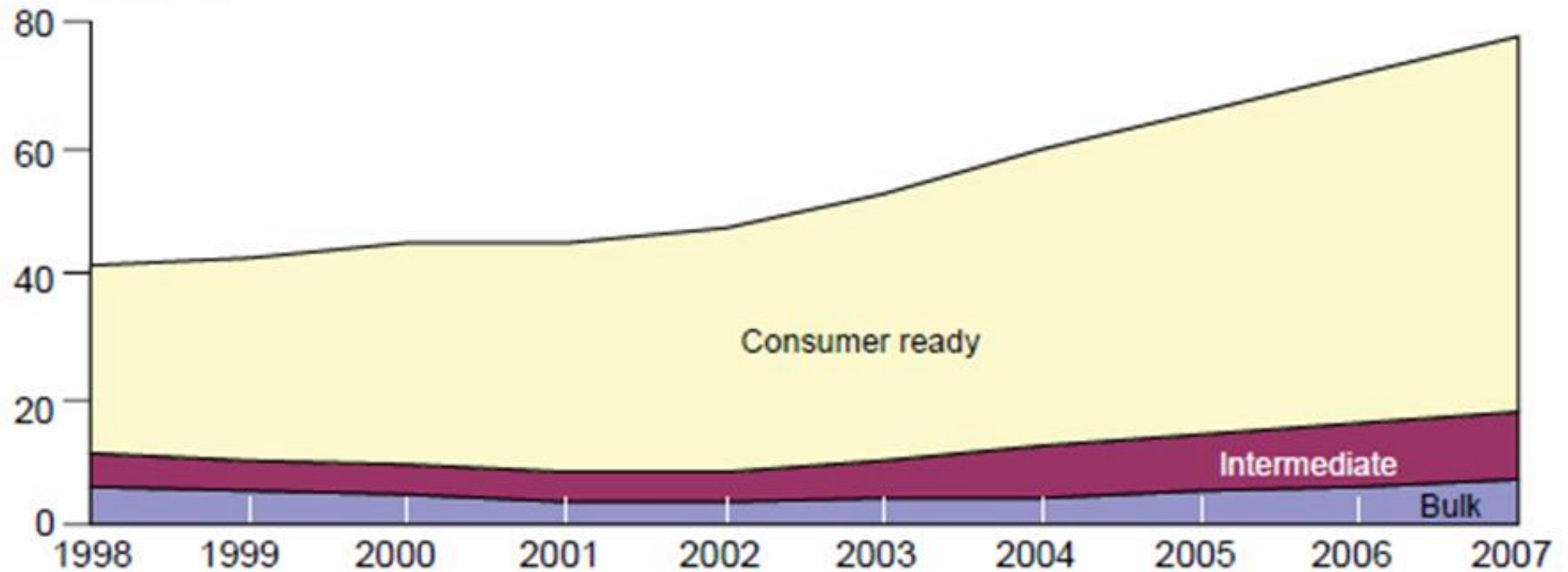
## Approximate percentage of food imports into USA, by selected food categories (2009, 2010)

Food Category	Percentage
Beef	14
Fish and Seafood (Fresh and Frozen)	80
Fresh Fruits	50
Fresh Vegetables and Melons	20
Honey	60
Lamb and Mutton	50
Tree Nuts	45

# United States Food Import Trends

U.S. food imports rose rapidly during fiscal years 1998-2007;  
consumer-ready products grew fastest

U.S. \$ billion



Compiled from data from the U.S. Department of Commerce, Census Bureau

# Examples of Economically Motivated Adulteration of Foods Produced in China

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- **Melamine** in **dairy products and pet foods** to fraudulently increase apparent nitrogen content
  - **Leather** in **dairy products** to increase apparent protein content
  - **Ground limestone** in **flour** to increase weight
  - Feeding **clenbuterol (fat-burning drug)** to **pigs and cattle** to speed up and increase muscle mass
  - **Counterfeit certification** of nonorganic crops, including soybeans, millet and buckwheat, as **organic**
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## **FDA Import Refusals for Contamination of Soy Protein Isolate from China between Nov 2011 - Apr 2012**

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<b>Company</b>	<b>Date</b>	<b>Reason for Refusal</b>
Sandong Crown Soya Protein	04/23/12	<b>Melamine</b>
Wenda Co Ltd	02/09/12	<b>Melamine</b>
Nanjing Sun Brain Garments Co Ltd	01/19/12	<b>Melamine</b>
Gushin Biological Technology Group Co Ltd	12/12/11	<b>Melamine Salmonella</b>
Shandong Gushin Imp & Exp Co Ltd	12/05/11	<b>Melamine</b>
Shandong Yuwang Industrial Co Ltd	11/01/11	<b>Melamine</b>

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# Examples of U.S. Food and Drug Administration Import Refusals of **SPICES** for *Salmonella* Contamination (mostly 2009; some 2010)

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- > 1300 total refusals

Spice	Countries
Allspice, whole and ground	El Salvador, Mexico
Anise, ground and seeds	China, Jordan, Syria, Turkey
Basil, whole and ground	Egypt, India, Thailand, Vietnam
Bay, whole	Egypt, Turkey
Black pepper, whole and ground	Canada, China, Ecuador, El Salvador, Ethiopia, France, Ghana, Hong Kong, Indonesia, Lebanon, Malaysia, Mexico, Pakistan, Russia, South Africa, Spain, Sri Lanka, Taiwan, Thailand, Turkey, Vietnam
Caraway, whole and ground	Egypt, India
Cardamom, whole and ground	Guatemala
Celery Seeds, whole and ground	China, India

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# Imported Foods: An Impending Food Safety Crisis?

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- Food imports to United States are increasing at an unprecedented rate: likely >20% of foods consumed in United States are imported (FDA Commissioner M. Hamburg estimated 24 million shipments in 2011)
  - Low cost is largely driving food industry to developing countries as sources of ingredients and consumer-ready foods
  - Many foods in many developing countries are not produced and prepared under acceptable sanitary practices
  - Building adequate oversight to ensure safe imported foods is a major future challenge
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# **Food Safety and the Food Industry**

## **Concluding Thoughts**

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- **Foodborne outbreak investigations have a major influence on a company's commitment to best practices**
  - **There are many ways to make foods safer; targeted research can provide answers**
  - **Regulation can help level the playing field**
  - **Growing international sourcing of foods and pressures to reduce food costs means industry needs to upgrade prevention and oversight programs**
  - **A strong foodborne disease surveillance and outbreak investigation system is essential to help ensure the safety of foods**
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# Opportunity for Food Safety Community, Especially the Government

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- Publically recognize/reward food companies that have a continued proven commitment to enhancing the safety of the food supply
    - ▲ Public recognition is already given to those companies that error badly in the food safety arena
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