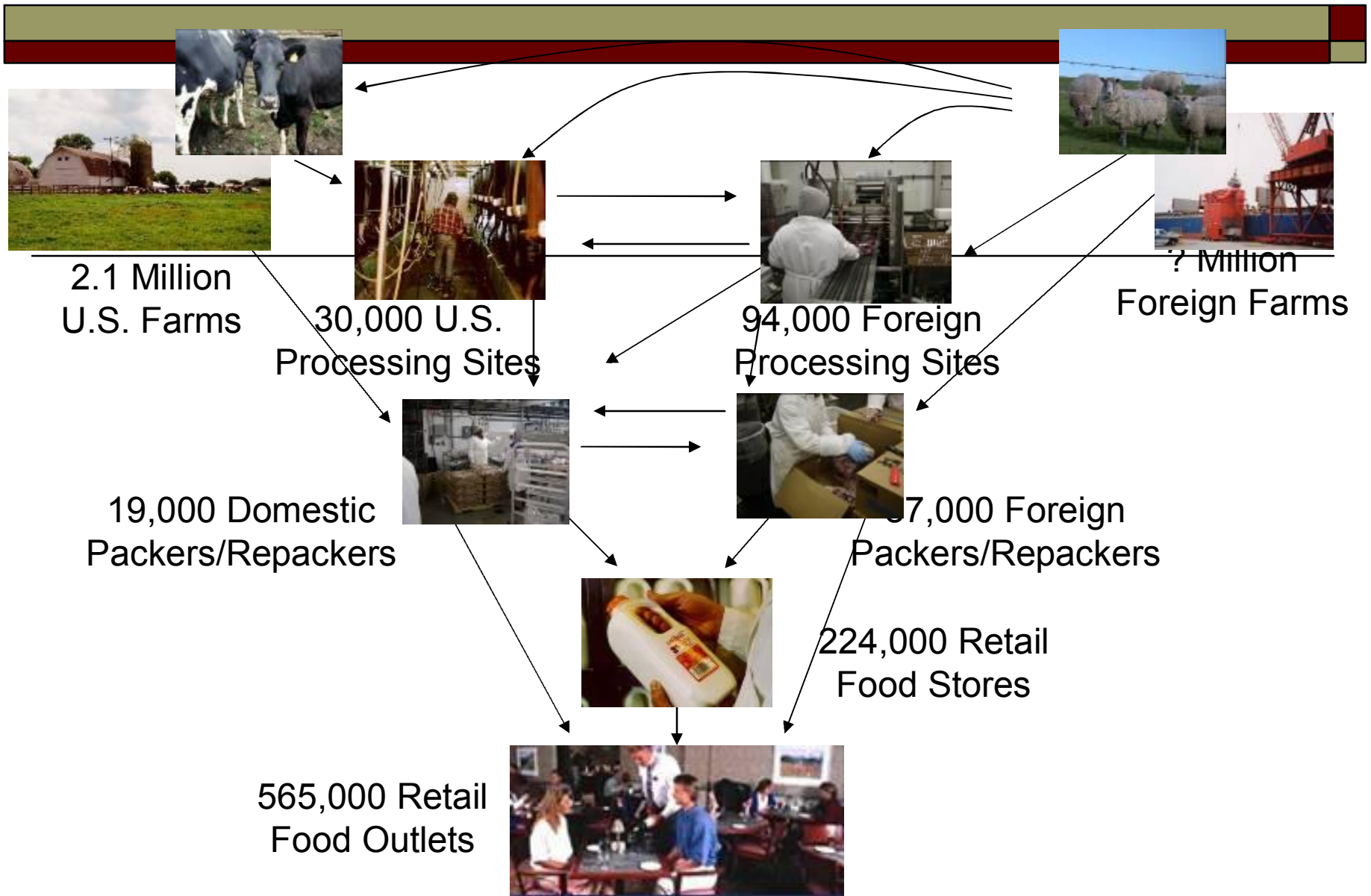




# U.S. Global Food System: Strength and Risk

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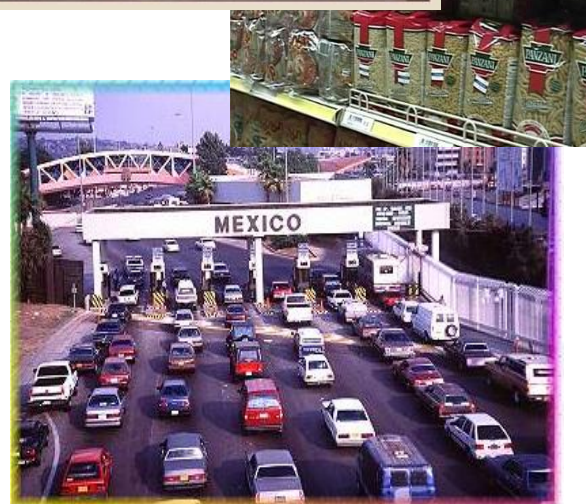
- Food system complexity makes contamination a real risk
  - 1.9 Million farms (8% have 68% of production)
  - 30,000 food manufacturing sites (94,000 foreign)
  - 19,567 re-packers/packers (87,000 foreign)
  - 264,000 retail food stores (34,052 supermarkets)
  - 565,000 food service outlets
- **Everyone eats – everyone a target**



Innumerable potential points of disruption/contamination  
 Inherently systems based

# Imported Foods

- ~ \$69 billion in ag. imports
- ~ 150,000 foreign facilities registered – only if food is not further processed!
- ~ 3% of imported food is inspected at the border
- Borders are porous



**Mexican trucks make about 4.5 million border crossings each year, according to US government figures. DOT 6-24-05**

**Over 90% of green onions and 48% of cucumbers sold in the United States were from Mexico in 2005**



# Imported Food & Ag. Products: From where?

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## Top 5 Countries – 2006 – 61% of import value

- EU – 25                      \$14.4 Bil.
- Canada                      \$13.4 Bil.
- Mexico                      \$ 9.4 Bil.
- Australia                    \$ 2.5 Bil.
- China                        \$ 2.3 Bil.

China Wheat Gluten: 12,834.6 MT in 2006

\$ 10.6 Mil.

# Bio-terrorism

Biological - anthrax, botulism, foot & mouth disease

Chemical - ricin, cyanide



**Canada 1970-** A postgraduate student contaminated his room mate's food with *Ascaris suum*, four persons became seriously ill and two suffered respiratory failure.

**Holland and Germany 1978-** A dozen children hospitalized after citrus fruit from Israel was intentional contaminated with mercury

**Oregon 1984** - Rajneeshee cult contaminated salad bars in 10 restaurants. 751 illnesses.

# Bio-terrorism (Food Safety)

## Impacts

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- Economic - contamination that leads to shutting down an industry – impacts on national economic growth
- Threat to confidence in government
- Global trade significance - China
- Cascading economic, psychological & sociological effects
  - UK and Dutch FMD outbreaks registered significant post-traumatic stress disorder rates
- Psychological – consumer fear
- Public Health - significant number of ill people or deaths



# Consumer Perceptions

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- Consumers believe terrorism events will occur in the near term
- Food attacks are the least anticipated, but consumers would spend the most on preventing
- Consumers place burden on the government first, industry a close second, for food defense



# Consumer Attitudes & Expectations About Food Defense

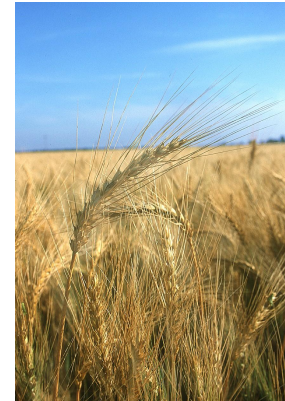
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National U.S. Survey of Consumers  
August 2005



4000+ adult Americans  
Internet – weighted to  
represent population

**Goal: Learn consumers priorities on spending for defense against terrorism related to food relative to other targets**



# Consumer Attitudes & Expectations

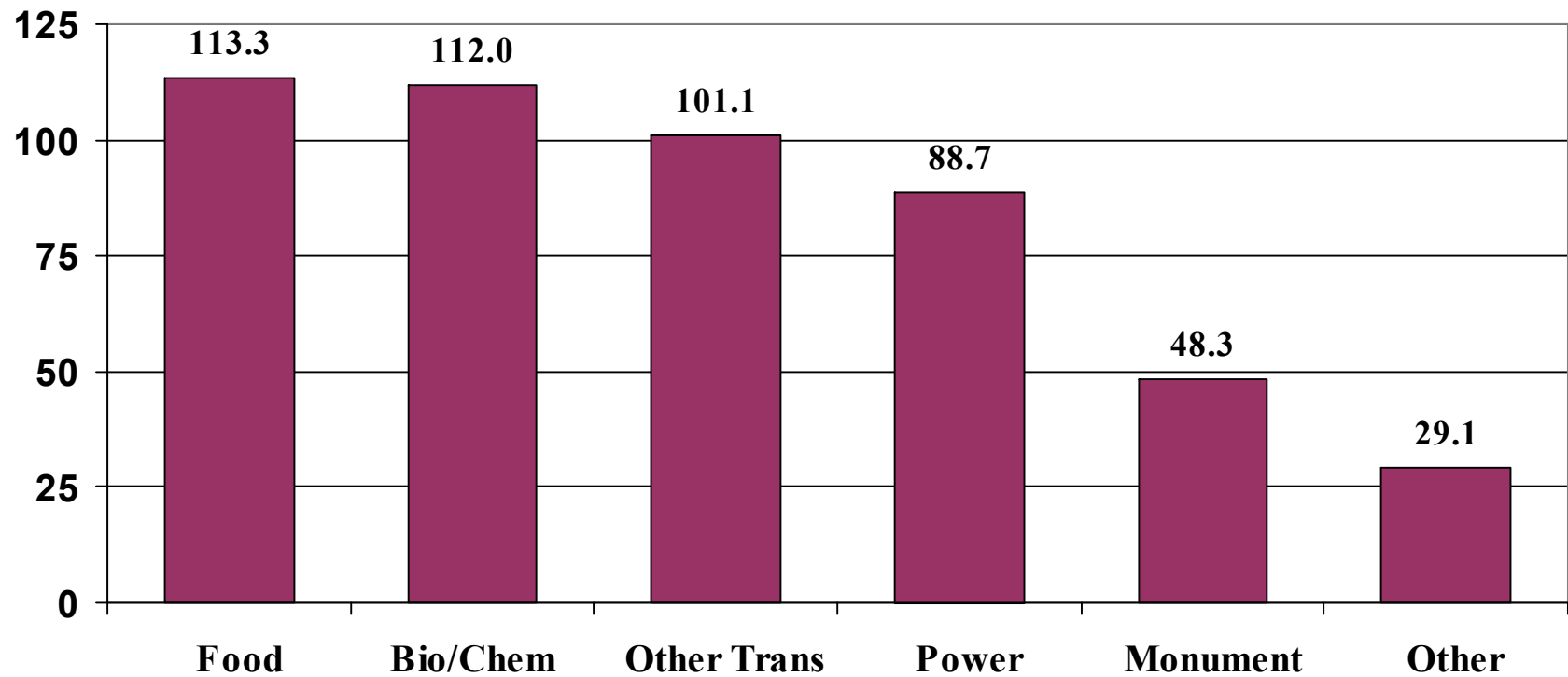


**1. Asked to allocate each \$100 spent on terrorist defense among the 6 targets.**

**2. Asked to compare confidence in food defense to food safety.**

# Public Says Spend More to Protect Food Supply and Defend against Chemical - Biologic Attack than to Secure Air Travel

Percent of allocation for air travel



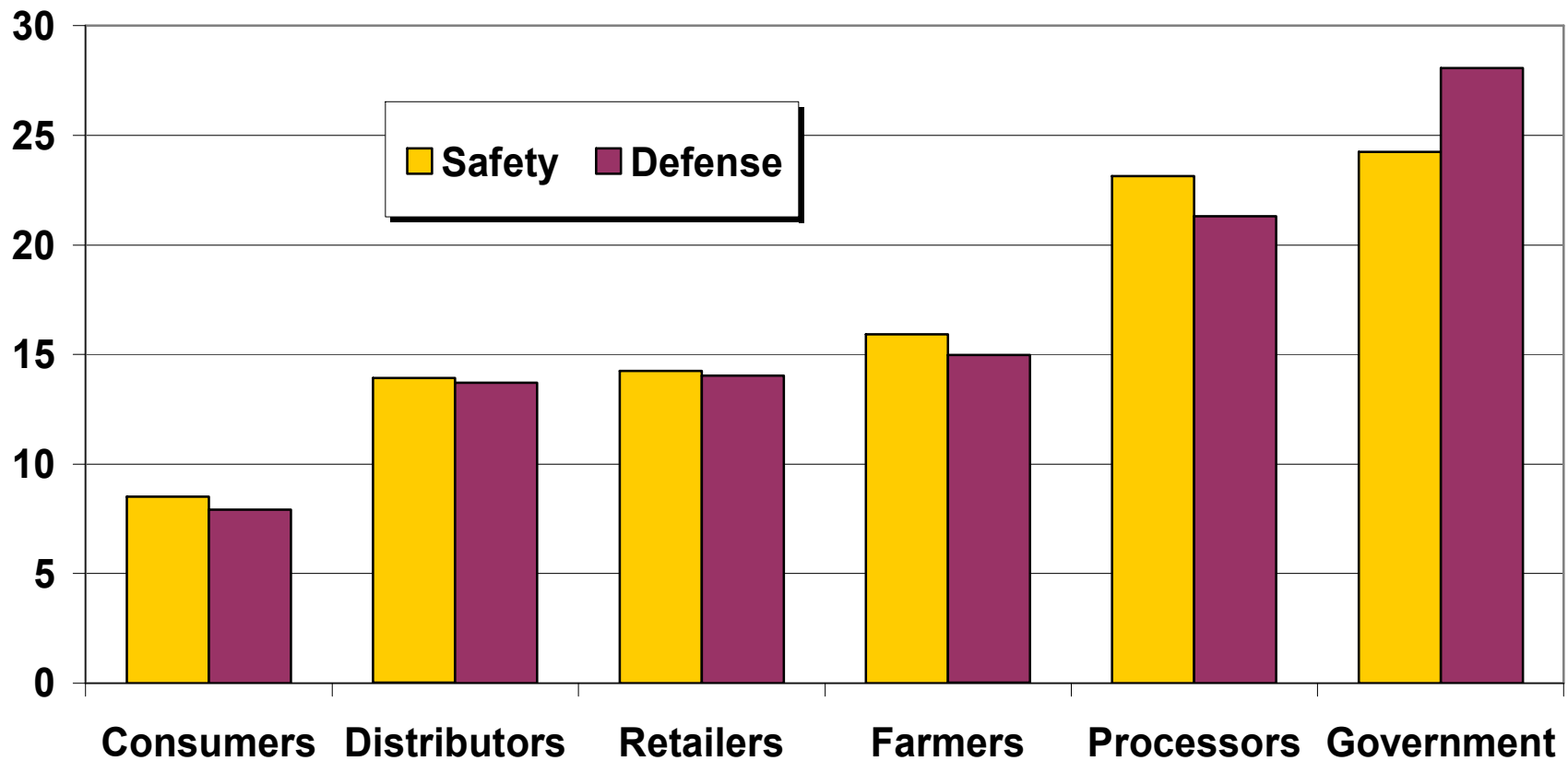
# Level of Confidence for Food Safety and Food Defense



**Figure 3:**

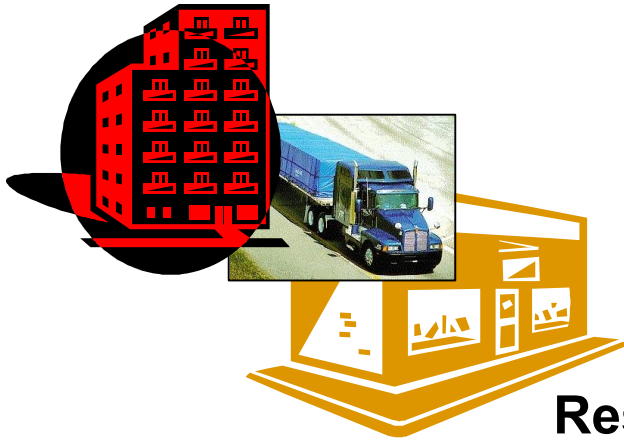
## **Public Expects Government and Food Processors to Pay for Food Defense**

Percentage of total  
food defense spending



# Benchmarking and Assessment :

## Defense Practices at Retail Food & Foodservice, & their Wholesale Suppliers, Manufacturers, and Truckers



### **Corporate headquarters**

Top 400 food retailers, Top 400 foodservice companies, Top 100 wholesalers for food retailers and for foodservice companies. Top 500 manufacturers and top trucking firms. (8% response rate – top 1/2-2/3 of sales)

### **Responsibility of recipient/respondent**

Quality Assurance (33%)

Security (20%)

Operations (20%)

Risk Management (11%)

Other (16%)

# Diagnostic Results for Foodservice Retail

<b>Food Supply Chain Security</b>		<b>World Class Benchmark</b>	
<i>Scale: Disagree 1 2 3 4 5 Agree</i>	<b>Firm Mean</b>		<b>Gap</b>
<b>Practices:</b>			
Physical Security	3.90	5.00	1.10
Strategy/Security Protocols	4.06	5.00	0.94
Audits and Metrics	3.88	4.67	0.79
<b>People:</b>			
Communications	3.97	5.00	1.03
Training	3.69	4.75	1.06
<b>Supply Chain Partners:</b>			
Supply Chain Collaboration	3.78	4.25	0.47
Supply Chain Verification	3.42	4.57	1.15
<b>Food Products:</b>			
Tracking/Monitoring	4.52	4.64	0.13
<b>Overall Score</b>	<b>3.90</b>	<b>4.74</b>	<b>0.83</b>

# Diagnostic Results for Manufacturing

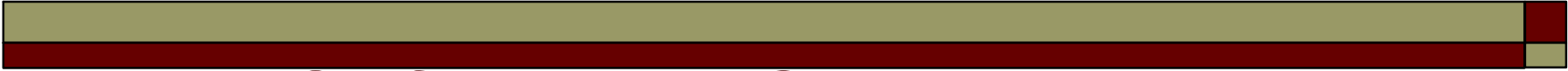
<b><i>Food Supply Chain Security</i></b>		<b>World Class Benchmark</b>	
<i>Scale: Disagree 1 2 3 4 5 Agree</i>	<b>Firm Mean</b>		<b>Gap</b>
<b><i>Practices:</i></b>			
Physical Security	3.66	5.00	1.34
Strategy/Security Protocols	3.45	5.00	1.55
Audits and Metrics	3.68	4.67	0.98
<b><i>People:</i></b>			
Communications	4.29	5.00	0.71
Training	2.77	4.00	1.23
<b><i>Supply Chain Partners:</i></b>			
Supply Chain Collaboration	4.14	5.00	0.86
Supply Chain Verification	1.90	4.00	2.10
<b><i>Food Products:</i></b>			
Tracking/Monitoring	4.38	5.00	0.63
<b>Overall Score</b>	<b>3.53</b>	<b>4.71</b>	<b>1.17</b>



# Firm and Supply Chain Readiness for Defending the Food System?

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- Retailers score lower than manufactures.
- Manufacturers score lower than foodservice companies.
- The gap is biggest for manufacturers.
  
- Foodservice has a “Brand” to protect and choices among suppliers. → tighter specifications and enforcement



# Food Safety and Quality cannot be separated anymore.

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- First order of business: Safety
- Second order of business: Safety and Defense
- Third order of business: Safety, Defense and shelf-life
- Fourth order of business: Safety, Defense, Shelf life and good Taste.
  
- Every order of business: Protect the integrity of the brand, the business, and keep people healthy.

# Thank You

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Co-Director, The Food Industry Center

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