Examining the 2006 Spinach Crisis from Multiple Perspectives

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Food Policy Institute

New Jersey Agricultural Experiment Station
About the
Food Policy Institute
Our Mission

“To bring the depth of academia’s knowledge to bear on pressing issues and challenges facing the food system by providing timely and relevant research that is responsive to the needs of government, industry and the consumer.”
Our History

• Founded in 1999 as an academic research institute of Rutgers University
• Originally funded as part of a Kellogg Initiative Grant (with Rutgers matching) focused on Land Grant Universities in the 21st Century
• Now a unit within the New Jersey Agricultural Experiment Station
Our Structure

• Board of Directors
  – Representing our core stakeholders in:
    • Industry
    • Government
    • Academia
    • Consumer Organizations

• Current Staffing:
  – 10 full-time staff
  – 4 graduate students
  – 6 undergraduate students
  – More than 30 affiliated faculty
  – Visiting Professors / Fulbright Fellows
Our Model

1. Focus on issues affecting the interdependent processes of food production, distribution, sales, consumption and regulation
2. Identify emerging issues well in advance of their becoming intractable problems
3. Identify relevant expertise within and outside Rutgers
4. Assemble multi-disciplinary teams to address those issues
5. Support those teams in conducting relevant research
6. Help to disseminate the results to key audiences
Our Core Research Skills

• Consumer Research
  – Surveys
  – Qualitative Research
  – Experimental Designs

• Economic Impact Studies

• Risk and Health Communication

• Econometric Modeling

• GIS/Spatial Analysis

• Media Analysis

• Policy Analysis

• Community Research and Action

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Recent Projects
Consumer Perceptions and Behavior

- Consumer perceptions of:
  - Agricultural Biotechnology / GM Foods
  - Agricultural/Food Terrorism
  - Animal Cloning and the Food Supply
  - Avian Influenza and the Food Supply
  - BSE/Mad Cow Disease
  - Food Allergens
  - Food Safety / Germs
  - Functional Foods
  - Imported Foods Products and Ingredients
  - Organic Foods
  - Qualified Health Claims
  - Unintentional Food Contamination

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Agricultural Policy

- Economic Analysis of Direct Marketing
- Analysis of impacts of changes in Farmland Assessment Policies
- Economic Impacts of the NJ Food System
- Economic Impacts of the Equine Industry
- Planning for Agricultural Viability
- Best Practices for Community Farmer’s Markets
- Farmland Affordability and Accessibility
- Development of Strategies to Improve Agritourism
- Agricultural Biomass Assessment for Energy Planning
Legislative / Regulatory Analysis

• Impacts on the Food Industry of Bioterrorism Act Legislation
• Impacts on Agriculture of Increases in the Minimum Wage
• The U. S. Regulatory Structure Related to Food Imports
Community Development

- An Analysis of Food Insecurity and Food Assistance in New Jersey
- Development of a Program to Improve Health and Nutrition Information in the NJ Oaxacan Community
- An Evaluation of the Efficiency and Effectiveness of the NJ WIC Program
- An Analysis of Emergency Food Supplies within Food Secure and Insecure Households
Food Biosecurity
Consumer Response to Food Contamination

- **Problem:** Most food biosecurity research is focused on *preventing* contamination.

- **Challenge:** How do we talk with the public/industry *after* food contamination incidents to help ameliorate their effects?
  - How can we get consumers to take appropriate actions?
  - How do we restore confidence in the food supply?

- **Opportunity:** What can we learn about dealing with *unintentional* food contamination incidents that will help us deal with *intentional* tampering?
Food Biosecurity

• “Food Biosecurity: Modeling the Health, Economic, Social, and Psychological Consequences of Intentional and Unintentional Food Contamination”

• Funding: USDA- CSREES
  – National Integrated Food Safety Initiative

• Team: 16+ investigators and students from 4 Universities
  – Disciplines:
    • Psychology
    • Agricultural economics
    • Nutritional science
    • Food science
    • Library science
    • Communications
    • Public health
    • Global affairs
    • Extension education.

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Food Recalls

- Focus on the September 2006 *E. coli* O157:H7 outbreak in fresh spinach

  - Analysis of press releases and other communications
  - Key informant interviews with industry/government
  - Media analysis of news coverage
  - National survey of consumer perceptions and responses

- What messages were intended?
- What messages were conveyed?
- What messages were received / by whom?
- What did people do?
Timeline

• September 14, 2006:
  – FDA issues nationwide advisory against eating bagged fresh spinach

• September 15-21, 2006:
  – Additional, daily press releases from FDA
  – Voluntary recall results in removal of fresh spinach from retail outlets
Timeline

• September 22, 2006:
  - “The public can be confident that spinach grown in the non-implicated areas can be consumed.”
  - “Industry is working to get spinach from areas not implicated in the current E. coli O157:H7 outbreak back on the market.”

• September 29, 2006
  - “Spinach on the shelves is as safe as it was before this event”
    David Acheson in telephone press conference
  - “The current outbreak has traced back to Natural Selections Food LLC of San Juan Bautista, California....In order to protect consumers, retailers and restaurateurs should not sell raw spinach or blends that may contain spinach ...
Timeline September, 2006

- FDA advises consumers to avoid fresh bagged spinach
- Spinach removed from stores
- Spinach slowly returns to stores
- Outbreak traced back to one firm: “Spinach is as safe to eat as it was before this event.”

FDA press release: “Consumers can be confident in eating spinach grown in the non-implicated areas.”

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• In the end,
  – Nearly 200 reported cases,
  – 100 hospitalizations in 26 states,
  – 31 cases of hemolytic uremic syndrome (kidney failure),
  – 4 deaths attributed to the contamination.

• Confidence was shaken in the entire industry.
Spinach Recall of 2006

Sales Dropped Dramatically

Recall brings visible category decline:
Total U.S. average spinach sales per week per store, 52 weeks ending 12/31/05 vs. 52 weeks ending 12/30/06

Connie Snell, Perishables Group Inc., West Dundee, Ill.; (502) 931-0713; e-mail: connie@perishablesgroup.com.
Sales data provided by Perishables Group’s FreshFacts, powered by ACNielsen, Schaumburg, Ill.
Sales Have Been Slow to Recover

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Bottom Line:

• It only took contamination on a single farm to have this effect.
What Have We Learned?

- **Cara Cuite**: Americans’ Responses to the Spinach Recall of 2006
- **Mary Nucci**: Communicating Food Safety: Television Coverage of the Spinach Recall of 2006
- **Andrew Pleasant**: Scared off spinach? An Analysis of Selected Print Media Coverage of the Spinach/E. coli Incident in the United States, 2006
- **Caron Chess**: Government as Effective Food Safety Communicator
- **William Hallman**: Looking Back, Looking Forward: Lessons Learned from a Multi-Disciplinary Examination of the 2006 Spinach Recall
National Telephone Survey: Public Perceptions of the Spinach Contamination of 2006

Cara L. Cuite, Ph.D.
New Jersey Agricultural Experiment Station
Methodology

- Data Collection: *November 8 - November 29, 2006*
- Random Digit Dial Sample
- All 50 states represented
- 1,200 American adults in final sample
- Response rate: 28%; Cooperation rate: 48%
- Sampling error ± 2.8% with 95% confidence
- Data weighted using appropriate U.S. census weights for gender, age, race, ethnicity, and education
Word “recall” used in survey

- Technically an “advisory” from the FDA
  - Media used the term “recall” more often
    - Search of 9 newspapers across the country from 9/15 to 9/22
      - RECALL: 107 times
      - ADVISORY: 30 times
Goals of the survey

• Did the American public get the important information about the spinach recall?
  – Were Americans aware of the recall?
  – Were they aware of the key details of the recall?
  – What did they believe was the status of spinach at the time of the survey?
Goals of the survey

• Did the American public get the important information about the spinach recall?
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• What did Americans do during the recall?
  – Did they eat spinach?
Goals of the survey

- Did the American public get the important information about the spinach recall?
  - Were Americans aware of the recall?
  - Were they aware of the key details of the recall?
  - What did they believe was the status of spinach at the time of the survey?

- What did Americans do during the recall?
  - Did they eat spinach?

- Did the spinach recall continue to affect behaviors even after it had ended?
  - Were Americans eating spinach again?
  - Were any non-spinach-related behaviors affected?
Were Americans aware of the spinach recall?
Awareness questions:

- Recently there was a national food recall in the United States. Did you hear about this food recall?
  - Can you tell me what food was recalled, or do you not know?

- There was a spinach recall in September. Did you hear about this recall?
Awareness of the spinach recall

- 87% had heard of spinach recall
- 13% had not heard of it or were not sure if they had heard of it.
Where did people *first* hear about spinach recall?

- TV: 71%
- Newspaper: 5%
- Radio: 9%
- Internet: 4%
- Person: 8%
- Other: 3%
Spinach was a topic of conversation.

How often would you say you’ve talked with others about the spinach recall?

- Frequently: 11%
- Occasionally: 19%
- A few times: 25%
- Once or twice: 29%
- Never: 16%

Among those who had heard of recall, 84% say they talked about the spinach recall with others.

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1n=1045
Did the American public know key details about the recall?
## Spinach Recall of 2006

**What types of spinach were recalled?**

<table>
<thead>
<tr>
<th>Spinach type</th>
<th>“True” (was recalled)</th>
<th>“Don’t know”</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Bagged fresh</td>
<td>95%</td>
<td>4%</td>
</tr>
<tr>
<td>*Loose fresh</td>
<td>68%</td>
<td>16%</td>
</tr>
<tr>
<td>Frozen</td>
<td>22%</td>
<td>21%</td>
</tr>
<tr>
<td>Canned</td>
<td>16%</td>
<td>14%</td>
</tr>
</tbody>
</table>
Spinach recall knowledge

- 52% of the respondents who had heard about the recall were able to correctly identify *E. coli* as the contaminant.
  - 35% said they didn’t know.

- 52% knew the contaminated spinach was grown in California.
  - 41% said they didn’t know.
What did the American public believe about the status of fresh spinach more than a month after the advisory had been lifted?
The authorities declared that fresh spinach available in supermarkets is now safe to eat. (T/F)

- True: 55%
- Don't know: 18%
- Uncertain: 25%
- False: 2%

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What did Americans do during the recall?
Eating spinach: Before the recall

All Americans 100%

Have heard of recall
- 87%
  - Eat spinach 44%
  - Do not eat spinach 42%

Have not heard of recall
- 13%
  - Eat spinach 4%
  - Do not eat spinach 10%
Eating spinach: Before the recall

All Americans 100%

Have heard of recall 87%
- Eat spinach 44%
- Do not eat spinach 42%

Have not heard of recall 13%
- Eat spinach 4%
- Do not eat spinach 10%

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Spinach Recall of 2006

Eat spinach and have heard of recall (44% of total population)

During the Recall

DID have fresh spinach in home 30%

Did NOT have fresh spinach in home 70%

Was NOT aware of recall at time 28%

Was aware of recall at time 72%

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Spinach Recall of 2006

Eat spinach and have heard of recall (44% of total population)

During the Recall

DID have fresh spinach in home
30%

Did NOT have fresh spinach in home
70%

Threw out spinach
73%

Ate spinach
27%
Spinach Recall of 2006

Eat spinach and have heard of recall (44% of total population)

During the Recall

- DID have fresh spinach in home (30%)
  - Threw out spinach (73%)
    - Was NOT aware of recall at time (28%)
  - Ate spinach (27%)
    - Was aware of recall at time (72%)

- Did NOT have fresh spinach in home (70%)
Did the spinach recall continue to affect behaviors even after it had ended?
How likely are you to eat spinach now that the recall is over?

- All Americans 100%
  - Have heard of recall 87%
    - Eat Spinach 44%
    - Do not eat spinach 42%
  - Have not heard of recall 13%
    - Eat Spinach 4%
    - Do not eat spinach 10%
Spinach Recall of 2006

Eat spinach and heard of recall
44%

- Already eating spinach
  44%

- 2 weeks later, on average

- 2 months later, on average

- May eat again
  51%

- Will not eat again
  5%
Generalization to other foods

- 18% reported they stopped eating OTHER bagged produce as a result of the spinach recall.
- 48% said they washed their food more thoroughly as a result of the spinach recall.
  - Note: This was not recommended as a way of making spinach safe to eat.
- There are no differences here between spinach eaters and non-spinach eaters in these behaviors
Conclusions

Did the American public get the important information about the spinach recall?

• Yes, they were largely aware of the recall.
• Important details were less well-known, particularly knowing that spinach in supermarkets was considered safe.
Conclusions

Did the American public get the important information about the spinach recall?
• Yes, they were largely aware of the recall.
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What did Americans do during the recall?
• Most, but not all, followed the advice to avoid spinach.
Conclusions

Did the American public get the important information about the spinach recall?
• Yes, they were largely aware of the recall.
• Important details were less well-known, particularly knowing that spinach in supermarkets was considered safe.

What did Americans do during the recall?
• Most, but not all, followed the advice to avoid spinach.

Did the spinach recall continue to affect behaviors even after it had ended?
• Yes, it affected both spinach-related and non-spinach behaviors.
Communicating Food Safety: Broadcast Television News Coverage of the Spinach Recall of 2006

Mary L. Nucci, MS
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Where the US public gets information*

- **Current news events**
  - Television \(49\%\)
  - Newspapers \(23\%\)
  - Internet \(14\%\)

- **Specific scientific issues**
  - Internet \(53\%\)
  - Television \(19\%\)
  - Newspapers/magazines \(12\%\)
  - Books \(9\%\)

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*Science and Engineering Indicators, 2008*
Food Policy Institute National Survey

Where did you first hear about the spinach recall?

- Television 71%
- Radio 9%
- Newspaper 5%
- Internet 4%
Research questions

• Content
  – What can the American public learn about recalls/recall events from the media?

• Dissemination
  – How does the information presented through media relate to the FDA’s source information?

• Structure
  – Who is covering food recall stories and to what extent?
Methodology

• Content analysis
  – Sep. 15 through Oct. 15, 2006
  – Two coders (Subsample intercoder reliability)

• Morning broadcast news
  – ABC Good Morning, America
  – CBS Early Show
  – NBC Today
    • Morning news shows combined viewership was 13.6 million in 2006*

• Evening broadcast news
  – ABC World News Tonight
  – CBS Evening News
  – NBC Nightly News
    • Evening news shows combined viewership was 26.1 million in 2006*

*Project for Excellence in Journalism, 2007
Results

• Yielded an N of 86 stories:
  – Fifty-nine (59) stories on morning news programs.
  – Twenty-seven (27) stories on evening news programs.

• Excluded from analysis were:
  – Teasers for upcoming news segments.
  – Recipes.
  – Stories that mentioned the spinach recall but were not about the spinach recall.
  – Stories about another recall that mentioned the spinach recall (eg, carrot juice, lettuce).
How was the issue covered?

• By network
  – ABC 25 stories (18/7)
  – CBS 27 stories (16/11)
  – NBC 34 stories (25/9)

• By month
  – 72 stories in September (50/22)
  – 14 stories in October (9/5)

• By schedule
  – 72% of total ABC stories were in the morning.
  – 59% of total CBS stories were in the morning.
  – 74% of total NBC stories were in the morning.
Television news stories on spinach recall: September 2006
Television news stories on spinach recall: October 2006

FDA press release

AM stories
PM stories
Themes of stories

• Recall notice/warning
  – 24 stories (28%, 12 am, 12 pm)

• Issues within the food industry
  – 7 stories (8%; 5 am, 2 pm)

• Health/medical issues related to food safety
  – 10 stories (12%; 9 am, 1 pm)

• Investigation status
  – 34 stories (40%; 26 am, 8 pm)

• Economics
  – 1 story (1%; pm)

• Other
  – 10 stories (12%; 7 am, 3 pm)
Who is at risk?

- Only 8 stories (9%) mentioned at risk populations
  - ABC am 9-15: “For reasons authorities say aren’t clear, most of the victims are women…”
  - CBS am 9-15: “…the very vulnerable, which would be young children and elderly people, people with compromised immune systems…”
  - CBS am 9-16: “…especially the very young and the very old…:
  - CBS pm 9-15: “…an aggressive bacterium that poses the highest risk for young children and the elderly.”
  - NBC am 9-15: “…and children and the elderly are most at risk.”
  - NBC am 9-16: “…most vulnerable include children and the elderly.”
  - NBC am 10-9: “…the very young, children and young children, and the very old, the elderly, the frail elderly, and those with a compromised immune system.”
Information on spread of disease

- Number of infected
  - 5 stories (6%; 3 am, 2 pm)

- Number of deaths
  - 7 stories (8%; 7 am)

- Number of infected and deaths
  - 50 stories (58%; 29 am, 21 pm)

- No information
  - 24 stories (28%; 11 am, 13 pm)
Type of spinach identified as contaminated

- Fresh in any packaging
  - 25 stories (29%; 15 am, 9 pm)

- All fresh
  - 10 stories (12%; 7 am, 4 pm)

- Multiple codes
  - 3 stories (3%; 2 am, 1 pm)

- No information
  - 48 stories (56%; 35 am, 13 pm)
Guidelines for avoiding spinach

- Do not eat bagged fresh
  - 14 stories (16%; 8 am, 6 pm)

- Do not eat any spinach
  - 12 stories (14%; 10 am, 2 pm)

- Do not eat spinach from California
  - 4 stories (5%; 2 am, 2 pm)

- Other
  - 3 stories (3%; 3 am)

- No information
  - 53 stories (62%; 17 pm, 36 am)
Guidelines for handling spinach

• Throw out, discard, destroy all spinach
  – 14 stories (16%; 11 am, 3 pm)

• No information
  – 72 stories (84%; 48 am, 24 pm)
Guidelines for consuming spinach

- You can eat spinach grown outside CA counties
  - 9 stories (10%; 6 am, 3 pm)

- You can eat any spinach
  - 1 story (1%; NBC am, Sep 30)

- You can eat frozen or canned
  - 1 story (1%; NBC am)

- No information
  - 75 stories (87%; 31 am, 24 pm)
Implicated as responsible for the contamination

- Grower/farmers
  - 18 stories (21%; 13 am, 5 pm)

- Processors/companies
  - 15 stories (18%; 11 am, 4 pm)

- Food system
  - 1 story (1%; pm)

- Other
  - 1 story (1%; am)

- Multiple codes
  - 7 stories (8%; 6 am, 1 pm)

- No information
  - 44 stories (51%; 28 am, 16 pm)
Who spoke about the contamination?

<table>
<thead>
<tr>
<th></th>
<th>FDA</th>
<th>USDA</th>
<th>CDC</th>
<th>Govt.</th>
<th>Industry</th>
<th>Academic</th>
<th>Victim</th>
<th>Activist</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABC am</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>ABC pm</td>
<td>4</td>
<td>1</td>
<td></td>
<td>6</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>CBS am</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>CBS pm</td>
<td>1</td>
<td>2</td>
<td></td>
<td>2</td>
<td>1</td>
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<td>4</td>
<td>2</td>
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<tr>
<td>NBC am</td>
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<td>1</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>4</td>
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<tr>
<td>NBC pm</td>
<td>3</td>
<td></td>
<td>1</td>
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<td>3</td>
<td></td>
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<td>2</td>
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<td>15</td>
<td>4</td>
<td>3</td>
<td>14</td>
<td>14</td>
<td>8</td>
<td>16</td>
<td>5</td>
</tr>
</tbody>
</table>

*Government includes legislators, other federal agencies, local government agencies*
Possible causes for contamination

- Contaminated water /contaminated soil
  - 7 stories (8%; 5 am, 2 pm)

- Human/animal wastes brought into field by animals
  - 8 stories (9%; 1 am, 7 pm)

- Improper handling/processing
  - 2 stories (2%; 1 am, 1 pm)

- Industrialization of agriculture
  - 2 stories (2%; am)

- Humans not observing sanitary procedures
  - 1 story (1%; am)

- Multiple causes
  - 10 stories (12%; 6 am, 4 pm)

- No information
  - 56 stories (65%; 43 am, 13 pm)
Directed to additional information

- **Morning**
  - Only CBS (2 am/2 pm) directed viewer to additional information within the show text*.
  - No additional information was provided for any ABC or NBC shows.

- **Evening**
  - Two pm stories on ABC and 4 stories (2 am/2pm) on CBS directed viewers to additional information within the show text*.
  - No additional information was provided for any NBC show.

*No information on crawls available.*
Conclusions

- Incomplete information regarding specific guidelines:
  - type of spinach identified as contaminated.
  - avoiding potentially contaminated spinach.
  - handling potentially contaminated spinach.
  - closure of recall.

- Missed opportunity to direct viewers to additional information.

- Skewed demographics of viewers impacts thorough information dissemination.
Scared off spinach?

An analysis of selected print media coverage of the Spinach/E. coli incident in the United States, 2006.

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School of Environmental and Biological Sciences

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Sample

- Search term - “spinach”
- September 15, 2006 and October 15, 2006
- 261 articles in final sample
- 2 coders, randomly selected subsample for intercoder reliability
Articles by publication date

- Ohio death link; revised warning; Genetic match in NM
- FBI investigation launched
- DNA match to cattle fecal sample

- Initial announcement
- Warning ‘downgraded’

- Maximum of 18 articles were published in one day
  - September 19th – September 21st
Readability
SMOG readability index

- Simplified measure of Gobbledygook
  - Easy to use
  - Available online (free)
  - But not an entirely accurate reflection of readability – a rough indicator.

- Overall, the articles had SMOG scores ranging from 8.68 – 18.21 grade level
  - Average SMOG score of 12.94 (SD = 1.42).

- In rough terms, half of the U.S. population reads at the 8th grade level or lower (NALs, NAAL).
Mean SMOG scores by newspaper

- Caution ... some have very small # of articles

![Graph showing mean SMOG scores by newspaper]
Reporting the Spinach Contamination
Type of spinach reported contaminated

- About one-quarter of articles provided no information about the type(s) of spinach that were contaminated.
- Nearly four-in-ten (38%) reported that fresh spinach had been contaminated, but provided no further information.
  - 45% reported that fresh packaged (bagged) spinach was contaminated.
  - 3.4% reported that fresh loose spinach was contaminated.
  - 2% reported that organic spinach was contaminated.
  - 2% reported that conventional (non-organic) spinach was contaminated.
  - No articles reported that either frozen or canned spinach was contaminated.
Reported morbidity and mortality

• Nearly three-quarters (74%) of articles reported the number of people infected from the contaminated spinach.
  – Reports of the number infected ranged from 1 to 400. (204)

• Similarly, 66% of articles reported the number of people who died from eating contaminated spinach.
  – Reports of the number who died ranged from 1 to 6. (3)
Symptoms reported

- Only about one-third (36%) of articles mentioned symptoms associated with illness from eating contaminated spinach.

**Frequency of mention of symptoms**

- Kidney damage/disease/failure: 32%
- Death: 17%
- Bloody diarrhea: 12%
- HUS: 9%
- Cramping: 8%
- Diarrhea: 7%
- Vomiting: 3%
- Damages blood vessel/intestinal lining: 1%
- Fever: 1%
Terms used to describe 2006 and past events

- 2006:
  - Alert
  - Crisis
  - Advisory
  - Warning
  - Scare
  - Contamination
  - Poisonings
  - Recall
  - Outbreak

- Past events:
  - Alert
  - Crisis
  - Advisory
  - Warning
  - Scare
  - Contamination
  - Poisonings
  - Recall
  - Outbreak

% of total articles

One article could use more than one term
Themes Related to the Spinach Contamination
Story themes

- Many articles had multiple themes
  - Less than half (41%) focused on the initial recall as the main theme.

Percentage of articles that included theme
Am I at risk?

- Slightly more than one-tenth (13%) of articles reported who was most ‘at risk’ for becoming ill with *E. coli* from the spinach contamination.
  - Young children and the elderly most frequently mentioned.
Threats from *E. coli* contamination

- 95% of articles mentioned potential threats from *E. coli* contamination.

Percentage of articles included each threat

<table>
<thead>
<tr>
<th>Threat</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>88%</td>
</tr>
<tr>
<td>Economic</td>
<td>35%</td>
</tr>
<tr>
<td>Social</td>
<td>28%</td>
</tr>
<tr>
<td>Political / Environmental Regulatory</td>
<td>9%</td>
</tr>
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<td></td>
<td>8%</td>
</tr>
</tbody>
</table>
Guidelines to consumers - missing in action

- Nearly half (47%) of articles failed to mention what foods should be avoided during the recall.

- Three-quarters (75%) of articles made no mention of what foods could be eaten during the recall.

- Roughly eight-in-ten (81%) failed to provide any food handling information related to the spinach contamination.

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Attribution of Responsibility
Who’s implicated in the contamination

- Almost half (45%) of the articles included no mention of who was implicated as responsible for the spinach contamination.
Possible causes for the contamination

- More than half (51%) of the articles did not identify any cause to the contaminated spinach.
  - No articles attributed the spinach contamination to terrorism.
  - 1 article (~1%) mentioned the vulnerability of the food supply to bioterrorism.

![Graph showing percentage of total articles mentioning each cause]

- Accidental
- Industrialization
- Handling post-harvest
- Contaminated Manure
- Other Unsanitary - Farm
- Contaminated water

Percentage of total articles that mentioned each possible cause (Articles could mention more than one)

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Effective protection?

- 44% of the articles reported that the government was not effective in protecting the food supply
  - 3% indicated that government protection of the food supply is effective

- Nearly one third (31%) of articles reported that contamination of food or the food supply is avoidable.

- 15% of articles explicitly reported that contamination of food or food supply is inevitable.
Sources
Sources

- The following information was not attributed to any source 39% of the times (on average) we coded its presence in the sample.
  - Contamination information
  - Number people who became infected
  - Number of people who died
  - Symptoms
  - At-risk population
  - What to avoid
  - What can be eaten
  - How to handle spinach
  - Causes of the contamination
  - ‘Not causes’ of contamination
  - Who was responsible for the contamination
Sources

- Over 100 different sources were cited.
- The FDA was cited in 17% of all citations.
  - David Acheson was cited specifically in 6% of all citations.
- Federal and state officials were cited in 7% of all citations.
- The CDC was cited in 4% of all citations.
- Unnamed/ unaffiliated officials or investigators were cited 5% of the time; federal officials, 3.4%; state officials/ investigators 2%.
- Unnamed industry reps./ Natural Selection Foods / and a number of individual spokespersons ~5.3%
Scientists as sources of information

- Nearly half (48%) of the articles mentioned scientists as a source of information.
- Of those ...
  - 46% cited only one scientist.
  - Nearly half (49%) reported scientific opinions in agreement.
  - 3% reported scientific opinions in disagreement.
  - Nearly all (98%) provided information about their organizational affiliation.
  - Very few provided information about funding (2), articles (1), research projects (4), or web resources (0).
Relationships
Relationships - themes, time, difficult language

- An analysis of public health values vs. traditional news values (often sensationalistic) ... public health values were somewhat dominant but both were present.
  - The ‘two cultures’ hypothesis is too simple to explain complex coverage

- As time progressed – the initial recall, economics, and guidelines for consumers all became less prominent themes.

- Difficulty of language in newspaper coverage rose slightly when the themes were guidelines for government and industry and the investigation.
Relationships - themes and newspaper type

- California newspapers were somewhat more likely to report on
  - food industry issues, economic implications, the investigation, and government/industry guidelines
  - And less likely to report on health issues and consumer guidelines.

- The closer to San Juan Baptista, CA a newspaper is physically located, the less likely it was to write about
  - food industry issues, economic implications, the investigation, and guidelines for government/industry.

- Larger newspapers were slightly more likely to address themes of
  - health and guidelines for consumers

- ... and slightly less likely to write about
  - economics and guidelines for gov. and industry.
Discussion points ...

- Print media was not the place to find ‘what to do’ information
- Many articles in print media were challenging to many Americans to fully comprehend
  - E.g. hemolytic uremic syndrome often appeared undefined or explained.
- Power lies in language
  - Consider the implications of ‘outbreak’ vs. ‘recall’ or ‘advisory’ ... ‘scare’ vs. ‘event’
Discussion points ... 2

- Very few industry sources - not terribly effective when present
- Articles focused on health threats and investigation
- Responsibility and blame was mainly placed on food industry
- Scientists are given almost unquestioned authority
- Government officials and events seemed to control the agenda (more)
  - news subsidies in form of press conferences; need for action
- Journalists often controlled the framing
Government as Food Safety Communicator during the Spinach Contamination of 2006

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The perceptions of intermediary groups...

Measured praise...

*I think they were as open and honest as they could be; I trust them.*
Access to information

- Heads up
- FDA as clearinghouse
- FDA responsiveness

*Use of communication networks*
The critics

I think that they (FDA) either are too quick to react or too slow to react...if they can’t give you an answer they don’t express it in the proper terms... If we said, “What’s the deal here, what’s going on?” [FDA would say] “Well, we still have to do testing, and we won’t know testing results, we can’t give you a time frame.” That’s not what people want to hear.
Media

*Often times what happened is that the media would get the report from the FDA and for two hours we would be getting phone calls about something we weren’t told about and then we would get a call from FDA and find out what exactly they said.*”

Praise for responsiveness
Clarity and timing of advisory

• Confusion about what covered

• Why delay in narrowing?

• Acknowledgement of “trust factor”
Closure

You can get into trouble if you say something is safe...It’s as safe now as it was before the outbreak, which to my way of thinking, is a scientific, accurate statement... We’ve got some issues that need to be addressed. It is an incorrect message to say, you are not going to get sick, anytime, ever, from fresh produce.
Spinach Recall of 2006

Jersey Fresh Spinach
Born to Make You Strong
with Proven Quality and Taste

The recent FDA advisory on fresh spinach may have made you wonder about the safety of spinach grown in New Jersey. While the state-wide precaution was a reasonable step to safeguard public health, you should know that spinach grown in New Jersey was never suspected of containing the E. coli bacteria strain that resulted in the FDA advisory.

Our Jersey Fresh spinach farmers meet the high-quality standards of the Jersey Fresh grading program. It's more than an advertising tag, it's a comprehensive program of assuring the highest quality product is coming from our local growers.

Now that the FDA advisory no longer applies to spinach grown in New Jersey, we remind you that the same safe, flavorful and high-quality spinach our Jersey Fresh farmers have always grown is back on the market and ready for you to use in salads and your favorite recipes.

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Now that the FDA advisory no longer applies to spinach grown in New Jersey, we remind you that the same safe, flavorful and high-quality spinach our Jersey Fresh farmers have always grown is back on the market and ready for you to use...
Conclusions

- Importance of communication networks
- Flexibility enhances cooperation
- Mechanisms for proactive communication
- More attention to closure
Looking Back, Looking Forward: Lessons Learned from a Multi-Disciplinary Examination of the 2006 Spinach Recall

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Useful Case Study

• The recall of *E. coli* contaminated spinach in 2006 was very different from most other recalls making it a useful case study.
  - An entire commodity was declared unfit for consumption.
  - Consumers were told:
    • nothing they could do would make the product safe to eat
    • the only proper action was to discard it
  - The initial advisory was initiated only after a cluster of illnesses was identified and attributed to eating raw spinach.
  - The incident resulted in a class 1 recall with documented illnesses, hospitalizations, and deaths.
  - Significant uncertainties initially existed with regard to which products were affected.
  - The source of the contamination and the means by which the bacteria spread to the spinach also remains unresolved.
National Attention

• The scope and nature of the risks posed by exposure to *E. coli* O157:H7 and the uncertainties surrounding the contamination incident demanded the attention of public health and other government officials, farmers, processors, distributors and retailers, the national media, and consumers themselves.

• National media gave rather extensive coverage to the advisory, recall, and its aftermath.

• The coverage was clearly aided and influenced by the many press-releases and conference call briefings made available by the FDA and by industry and consumer groups.
Public Health Goal Met

• Most people heard about the recall.
  – But, detailed information was less well remembered.

• Most people reported that they stopped eating spinach during the recall.
  – A small percentage ate spinach knowing that the recall was in effect.

• Even people who don’t eat spinach changed some behaviors as a result of the recall.
Coverage of “What to Do” lacking

- Television and newspaper coverage tended to focus on:
  - The number of deaths and illnesses related to consuming the contaminated spinach
  - The progress of the investigation
- It did not focus on:
  - What was safe to eat
  - What was unsafe
  - Providing practical information to consumers about how they could avoid becoming ill themselves.
- Consumers were unlikely to read or hear “what to do”
- Much of the coverage may have been difficult for many Americans to comprehend

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Focus on Victims and Investigation not Surprising

- After the initial advisory issued by the FDA, the majority of the subsequent “update” press releases led with:
  - the number of cases reported
  - the number of states affected
  - information about the products recalled
  - the progress of the investigation.

- Advice to consumers about what to do became much less prominent
FDA Press Releases

- E. coli in Spinach Update *(Oct. 12, 2006)*
- E. coli in Spinach Update; 199 Cases Reported *(Oct. 6, 2006)*
- E. coli in Spinach Update *(Oct. 5, 2006)*
- E. coli in Spinach Update; 192 Cases Reported *(Oct. 4, 2006)*
- FDA Announces Findings From Investigation of Foodborne E. coli O157:H7 Outbreak in Spinach *(Sept. 29, 2006)* *(Spanish version)*
- E. coli in Spinach Update; 183 Cases Reported *(Sept. 26, 2006)*
- E. coli in Spinach Update; 175 Cases Reported *(Sept. 25, 2006)*
- E. coli in Spinach Update; 173 Cases Reported *(Sept. 24, 2006)*
- E. coli in Spinach Update; 171 Cases Reported *(Sept. 23, 2006)* *(Spanish version)*
- E. coli in Spinach Update; 166 Cases Reported *(Sept. 22, 2006)*
- Three California Counties Source of Spinach Implicated in E. coli Outbreak *(Sept. 21, 2006)*
- E. coli Outbreak Spreads to Two More States; Another Distributor Recalls Spinach *(Sept. 20, 2006)*
- E. coli in Spinach Update; 131 Cases Reported *(Sept. 19, 2006)*
- Cases of Illness Continue to Be Reported in Spinach E. coli Outbreak *(Sept. 18, 2006)*
- Update on E. coli Outbreak; Recall Expanded *(Sept. 17, 2006)*
- Update on E. coli in Spinach; 102 Cases Reported *(Sept. 16, 2006)*
- Spinach Investigation Ongoing; Natural Selection Foods Recalls All Products With Spinach *(Sept. 15, 2006)*
- FDA Warns Consumers Not to Eat Bagged Spinach Due to Serious E. coli Outbreak *(Sept. 14, 2006)*
Details Lost

• Many Americans were unaware of important details related to the recall.
• Many were confused about:
  – The types of spinach affected
  – The organism that caused the contamination
  – Where the contamination had occurred
  – Whether cooking or washing the spinach would make it safe to eat
  – The symptoms of the resulting illness
• Most significantly many did not know whether the recall had ended.
Closure Messages Lacking

- It may be impossible for consumers to be assured that the consumption of any product is absolutely safe.
- However, many Americans wanted to know whether the "problem had been solved" and "spinach was safe".
- Yet, information provided by the FDA was both ambiguous and given little attention by the media.
  - "The public can be confident that spinach grown in the non-implicated areas can be consumed."
  - "...Industry is working to get spinach from areas not implicated in the current *E. coli* O157:H7 outbreak back on the market."
- As a result, industry organizations and some State governments issued messages of their own, in an attempt to reassure consumers.
Closure Still Not Achieved

• A significant number of people were unsure about whether the spinach recall had ended.
  – How can we effectively get the message out to this group of people?

• Most people seem to believe that spinach is now safe.
  – Less likely to get sick from spinach now.
  – Most people have eaten or will go back to eating it.
  – However, 5% say they will never go back to eating it.

• But, sales of spinach and other leafy greens still appear to be down over the same period prior to the incident
Signal Event

- The incident also became a “signal event”, raising larger questions about the safety of the entire food supply.
- News coverage of subsequent recalls of a variety of products frequently mentioned the 2006 spinach recall as providing evidence of a decline in overall food safety.
Key Areas to Improve:

- Need to work on communications designed to help consumers “know what to do”
  - Press releases may need to be redesigned to place greater emphasis on practical information for consumers
- Additional work on creating more effective closure messages at the National level will be critical to appropriately manage future recall incidents.
  - Especially those potentially involving intentional contamination
Next Steps

• Focus on the Food Imports System
  – Will release a primer on the system later this week

• Focus on consumer confidence in the safety of imported food products and ingredients
  • National survey planned for Summer, 2008.

• Focus on consumer understanding and responses to the food recall system in the United States
  • Currently teaming with the Grocery Manufacturer’s Association to conduct a national survey in March/April 2008.
  • Writing white paper on best practices in communicating with the public about recalls
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