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Measuring Establishment Risk for Risk-Based Inspection

Donald ANDERSON

American Agricultural Economics Association - 2006 Pre-Conference Workshop: New Food Safety Incentives and Regulatory, Technological, and Organizational Innovations July 22, 2006, Long Beach, CA

Measuring Establishment Risk for Risk-Based Inspection

Donald Anderson

Program Evaluation, Enforcement & Review Food Safety and Inspection Service

The views presented in this talk represent the author's views and are not necessarily an official position of the Food Safety and Inspection Service







Resource Deployment Resources

Traditional

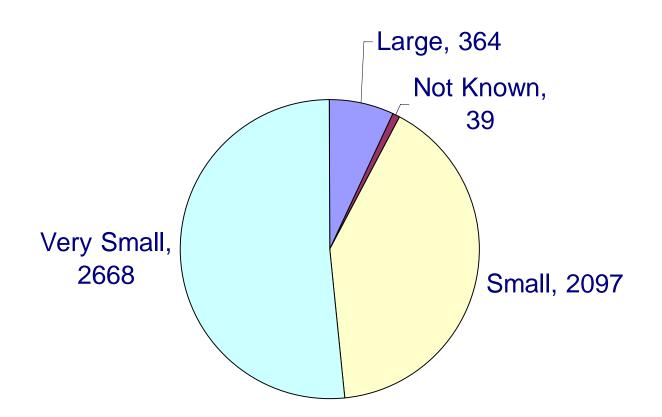
- Based on what needs to be done
 - Inspecting carcasses
 - Inspect once per shift

Risk-Based

- Align resources also with level of risk:
 - Inspecting carcasses
 - Inspect once per shift
 - Inherent Risk
 - Risk Control
 Effectiveness

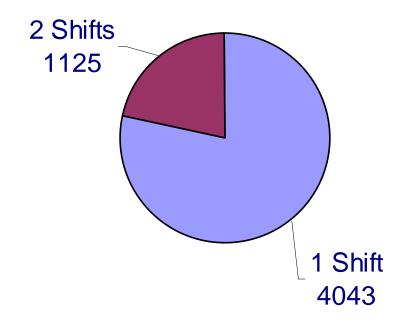


SBA Size



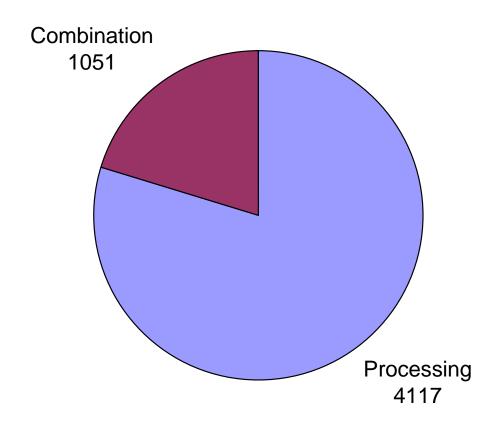


Number of Shifts

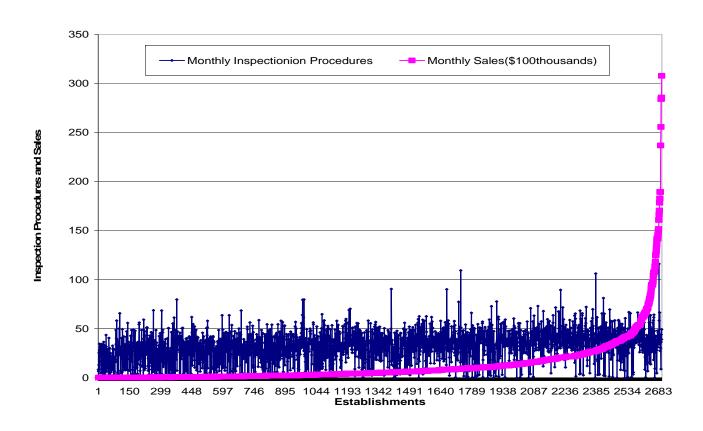




Type of Establishment



Inspection Procedures and Sales





Risk Concepts for RBI

- Inherent Risk- inherent establishmentlevel public health risk
- Risk Control Effectiveness operational effectiveness of an establishment's food safety systems



Determinants of Inherent Risk

- Species/Market Class/Ingredients
- Process
- Interventions
- Production Volume/Exposure

M

2001 Inherent Risk Formula

(Species + Process) x Volume

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Fully-cooked pork (2.3 + 3) \times 2 = 10.6

Fully-cooked turkey (4.0 + 3) \times 2 = 14.0

Canned pork (2.3 + 1) \times 2 = 6.6

Canned turkey (4.0 + 1) \times 2 = 10.0
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2006 Inherent Risk Formula

(Species/Process) x Volume

- 2005 Expert Elicitation for 24 species/process combinations
- Establishment Volume Survey



Risk Control Components

- Food Safety System Design
- Food Safety System Implementation
- Pathogen Control
- In-Commerce Findings
- Enforcement Actions
- Other Components



Food Safety System Design

- Efficacy of the food safety system
- Food Safety Assessment Findings
 - When was the last FSA?
 - What was the outcome?



Food Safety System Implementation

- FSIS documents all regulatory noncompliances— and will continue to do so under RBI
- However, not all NRs are equally indicative of risk control deficiencies
- Our goal is to identify, enumerate, and properly weight public health-related NRs



Pathogen Control

- Pathogen Control in Ready-to Eat Products,
 Ground Beef, and Other Raw Products
 - Lm, Salmonella, and E. coli O157:H7, and RTE testing program results
 - E. coli O157:H7 (raw ground beef) testing program results
 - Salmonella verification testing program results



In-Commerce Findings

- Adverse Findings In-Commerce
 - Significant Consumer Complaints?
 - Class I or II Recalls?
 - Other Considerations?



Enforcement Actions

- Involving Food Safety
- Not preceded by significant NRs
- Not initiated as a result of an FSA

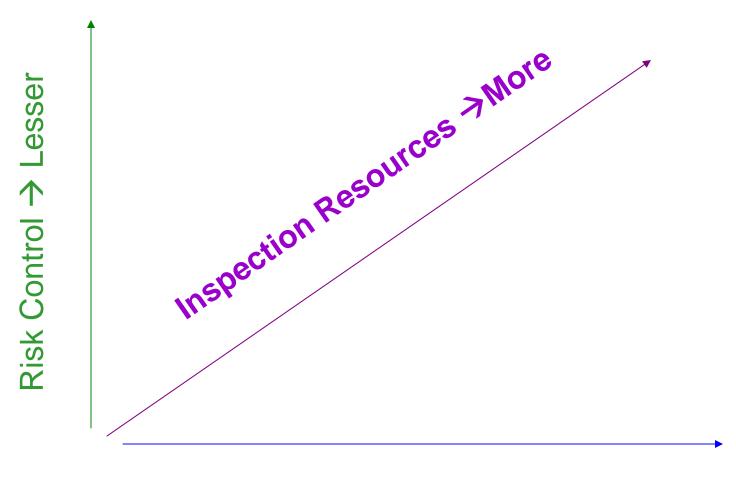


Other Considerations

- Other Serious Public Health Concerns
 - E. coli O157:H7 Positives Suppliers?
 - AMS school lunch testing results?
 - Others?



Resource Deployment Under RBI



Inherent Risk→ Higher



Donald W. Anderson is the Deputy Director of the Policy and Evaluation and Improvement Staff (within OPEER) at the Food Safety and Inspection Service. Upon completing the Master of Economics program at North Carolina State University in 1979, Don joined RTI International, where he was an economist for 24 years. Since joining FSIS in 2006, Don has taken a lead role in the development of an improved risk-based inspection program, focusing on methods for measuring inherent public health risk and risk control effectiveness in meat and poultry processing establishments.

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"New Food Safety Incentives & Regulatory, Technological & Organizational Innovations" - 7/22/2006, Long Beach, CA AAEA section cosponsors: FSN, AEM, FAMPS, INT

Industry perspectives on incentives for food safety innovation

Continuous food safety innovation as a management strategy
Dave Theno, Jack in the Box, US
Economic incentives for food safety in their supply chain
Susan Ajeska, Fresh Express, US
Innovative food safety training systems
Gary Fread, Guelph Food Technology Centre, Canada

Organizational and technological food safety innovations

Is co-regulation more efficient and effective in supplying safer food?

Marian Garcia, Dept. of Agricultural Sciences, Imperial College London
Andrew Fearne, Centre for Supply Chain Research, University of Kent, UK
Chain level dairy innovation and changes in expected recall costs
Annet Velthuis, Cyriel van Erve, Miranda Meuwissen, & Ruud Huirne
Business Economics & Institute for Risk Management in Agriculture,
Wageningen University, the Netherlands



"New Food Safety Incentives & Regulatory, Technological & Organizational Innovations" - 7/22/2006, Long Beach, CA (con't)

Regulatory food safety innovations

Prioritization of foodborne pathogens

Marie-Josée Mangen, J. Kemmeren, Y. van Duynhoven, A.H. and Havelaar, National Institute for Public Health & Environment (RIVM), the Netherlands

Risk-based inspection: US Hazard Coefficients for meat and poultry Don Anderson, Food Safety and Inspection Service, USDA

UK HAS scores and impact on economic incentives
Wenjing Shang and Neal H. Hooker, Department of Agricultural,
Environmental & Development Economics, Ohio State University

Private market mechanisms and food safety insurance

Sweden's decade of success with private insurance for *Salmonella* in broilers Tanya Roberts, ERS, USDA and Hans Andersson, SLU, Sweden

Are product recalls insurable in the Netherlands dairy supply chain?
Miranda Meuwissen, Natasha Valeeva, Annet Velthuis & Ruud Huirne,
Institute for Risk Management in Agriculture; Business Economics & Animal
Sciences Group, Wageningen University, the Netherlands

Recapturing value from food safety certification: incentives and firm strategy Suzanne Thornsbury, Mollie Woods and Kellie Raper Department of Agricultural Economics, Michigan State University

NA.

"New Food Safety Incentives & Regulatory, Technological & Organizational Innovations" - 7/22/2006, Long Beach, CA (con't)

Applications evaluating innovation and incentives for food safety

Impact of new US food safety standards on produce exporters in northern Mexico Belem Avendaño, Department of Economics, Universidad Autónoma de Baja California, Mexico and Linda Calvin, ERS, USDA

EU food safety standards and impact on Kenyan exports of green beans and fish Julius Okello, University of Nairobi, Kenya

Danish Salmonella control: benefits, costs, and distributional impacts Lill Andersen, Food and Resource Economics Institute, and Tove Christensen, Royal Danish Veterinary and Agricultural University, Denmark

Wrap up panel discussion of conference

FSN section rep. – Tanya Roberts, ERS, USDA AEM section rep. – Randy Westgren, University of Illinois INT section rep. – Julie Caswell, University of Massachusetts FAMPS section rep. – Jean Kinsey, University of Minnesota Discussion of everyone attending conference

Note: speaker is either the 1st person named or the person underlined.

Thanks to RTI International for co-sponsoring the workshop.



"New Food Safety Incentives & Regulatory, Technological & Organizational Innovations" - 7/22/2006, Long Beach, CA (con't)

Workshop objectives

- Analyze how new public policies and private strategies are changing economic incentives for food safety,
- Showcase frontier research and the array of new analytical tools and methods that economists are applying to food safety research questions,
- Evaluate the economic impact of new food safety public policies and private strategies on the national and international marketplace,
- Demonstrate how new public polices and private strategies in one country can force technological change and influence markets and regulations in other countries, and
- Encourage cross-fertilization of ideas between the four sponsoring sections.

Workshop organizing committee

Tanya Roberts, ERS/USDA, Washington, DC - Chair Julie Caswell, University of Massachusetts, MA Helen Jensen, Iowa State University, IA Drew Starbird, Santa Clara University, CA Ruud Huirne, Wageningen University, the Netherlands Andrew Fearne, University of Kent, UK Mogens Lund, FOI, Denmark Mary Muth, Research Triangle Institute Foundation, NC Jayson Lusk, Oklahoma State University, OK Randy Westgren, University of Illinois, IL Darren Hudson, Mississippi State University, MI