Purposes 1 and 2 in Priority Setting

• Purpose 1 - Guides allocation of food safety resources across a **broad range** of opportunities to improve food safety

• Purpose 2 - Guides the choice of risk management actions and interventions with respect to **particular hazards and commodities**
Common Analytical Elements

To varying degrees, Purpose 1 and Purpose 2 priority setting may involve:

- **Risk ranking** – to identify hazards whose public health impact may deserve priority for action or deeper analysis;

- **Intervention assessment** – to identify possible risk reduction interventions and, when possible, their feasibility, effectiveness and cost;

- **Health benefit assessment** – to understand, especially in Purpose 2 and post hoc evaluation, the public health benefit of specific interventions;

- **Combined assessment** – integrating data from risk, intervention, and benefit assessments to inform resource allocation and risk management decisions.
Conceptual Framework: Costs, Effectiveness, and Benefits

Risk Ranking (FIRRM)
- Health outcomes
- Health valuation

Intervention Assessment
- Feasibility
- Costs
- Define indicators
- Effectiveness (as indicator)

Health Benefit Assessment
- Dose-response modeling
- Health outcomes
- Health valuation

Public Health Surveillance & Animal/Food Data

Priority Setting Decision
Purpose 1: Public, Broad:
(e.g., resource allocation, data, research, education)
Purpose 2: Public/Private, Specific:
(e.g., regulatory action, private intervention)

Combined Assessment
- Cost-effectiveness (indicator)
- Cost-effectiveness (pub hlth)
- Cost-benefit analysis

Post Hoc Evaluation
Cost Assessment

- Goal is integrated cost assessment of candidate interventions
  - Choice of risk management strategies depends on effectiveness and cost
  - Effectiveness/cost interactions influence choices
  - Direct costing of interventions is an element of the analysis
    - Cost of inputs, changes in capital, labor, training
  - However, direct costing will not fully capture actual costs of an intervention
    - Market effects
    - Dynamics
Combined Assessment: Ranking Interventions

• Risk reduction
  - measured by indicators or public health outcomes

• Purpose 1 - Broad
  - Costs of alternative interventions to system
    • Changes in production/consumption, costs to industry
  - Cost-benefit analysis
    • Economic valuation ($) of costs and benefits of intervention

• Purpose 2 - Specific
  - Cost effectiveness of intervention in process
    • Cost of attaining $x\%$ reduction in contamination levels in raw product
Underlying Economic Forces in the Food System

- Commingling of products in agriculture
- Strong dependencies between agent decisions in food supply chains

And...

- Increased consumer demand for differentiated products and quality assurance
- Nature of food system presents the challenge for allocating public and private resources to assure safer food
Systemic interactions and market failure

• Interconnected stages in food production systems can lead to failures
  - Consequences are known but cause is not
  - Cause is known but mixing occurs

• Consequences:
  - Losses spread through much of the system
Example: Distribution System

Field 1

Field 2

Field 3

Field 4

Processor Storage 1

Processor Storage 2

Distributor

Retailer 1

Retailer 2

Retailer 3

Example: Distribution System
Example: Distribution System

Field 1

Field 2

Field 3

Field 4

Processor Storage 1

Processor Storage 2

Distributor

Retailer 1

Retailer 2

Retailer 3
System interconnectivity

Interconnections in system create potential for failures and reduce firms’ incentives

Potential approaches and policies (interventions) to reduce interconnectedness

- Improve product traceability
- Close the system, strengthen contracts
- Invest in information management, audit infrastructure
- Improve detection methods and technologies
Lessons from other sectors

• Firms face private incentives to improve food safety (e.g., branding)
• Private actions have a large influence on food safety – may be greater than required by public regulation
• Costs may vary by size of firm or plant
• Distributional effects may be relatively large
• Short run vs. long run
• System linkages means improvements in one activity or level may improve product at other levels
Challenge Areas

• Setting priorities involves:
  – Ranking risks, predicting food safety outcomes, and other modeling issues
  – Evaluating the effectiveness of interventions
  – Assessing costs and valuing product improvements or health benefits of interventions

• Striking the right balance:
  – Enough analysis to support effective policy making and timely decision making
    • Both for broad (Purpose 1) and specific (Purpose 2)
  – Not so much analysis that decisions are stymied