Local Foods: Safety, Freedom & Other Values in Conflict
Friday, September 25, 2009

part of Food Safety, Security & Sources: A Recipe for Tough Times
September 24-25, 2009 – Laramie, Wyoming

Local Foods: Safety, Freedom & Other Values in Conflict

Overall Guiding Ideas / Concepts / Questions

Safety Availability Affordability of Local Foods

Why are these dimensions / factors / characteristics / important?
What can be done to achieve them or increase the likelihood of achieving them?

Foodborne Disease – It Does Exist

Tracy D. Murphy, MD
State Epidemiologist
Wyoming Department of Health

Foodborne Illness in WY

- Foodborne illnesses do indeed occur in WY
- 1,012 cases of Campylobacter, E. coli, Salmonella, Shigella reported to WDH 2003-2008
- In 2008 WDH epidemiologists investigated 12 outbreaks with food as likely source

Foodborne Illness

- Where does foodborne illness originate?
  - Majority of illness that is likely due to contaminated food occurs sporadically (not part of larger outbreak)
  - Of the 1,012 cases of Campylobacter, E. coli, Salmonella, Shigella reported 2003-2008, approx. 70% were sporadic
Foodborne Illness

- Most cases of foodborne illness occur as a result of the food handling and preparation practices of persons in their own kitchens
- Well documented outbreaks of foodborne illness due to botulism, other Clostridium species, Salmonella, Campylobacter, others, from consumption of home produced food, including commercial sales of home produced food

- Restaurants (contaminated food, infected food handlers)
- Mass produced, commercially available food

Foodborne Illness

- Virtually any food or drink can become contaminated with disease causing organisms and cause illness
- It is FALSE that only certain hazardous foods can spread disease
- 179 documented outbreaks resulting in 4,904 illnesses linked to breads, cakes, pies, other bakery items in U.S. 1990-2006 (Center for Science in the Public Interest, Dec 2008)

- Raw (unpasteurized) milk leading cause of Campylobacter outbreaks in WY
- WDH investigated 3 outbreaks, resulting in 18 illnesses, of Campylobacter associated with raw milk 2003-2008
- More isolated cases identified that were likely due to raw milk or milk products

- U.S. 2006, 10 outbreaks linked to raw milk, caused by Campylobacter, E. coli, Salmonella, Listeria (CDC MMWR 2009;58:609-15)
- April 2009, cluster of Campylobacter illness associated with cow sharing program, CO
- 29 cases Salmonella caused by raw dairy products, PA, 2007 (Lind L, et al. MMWR 2007;56:106-14)
  - Most cases were < 14 years of age

- Not restricted to microorganisms
- U.S., 2006, outbreaks due to
  - Natural toxins
  - Cleaning agents
  - Other chemicals
  - Outbreak resulting in 11 illnesses due to contamination of baked goods with floor sealant
Biological hazards present the greatest risk!!!
INTRINSIC and EXTRINSIC PARAMETERS OF FOODS

**Intrinsic**
- pH
- Moisture Content, $A_w$
- Oxidation/Reduction Potential
- Nutrient Content
- Antimicrobial Constituents
- Biological Structures

**Extrinsic**
- Temperature of Storage
- Relative Humidity
- Presence and Concentration of Gases

Estimated total illnesses and Percent food borne transmission, est. 1997

<table>
<thead>
<tr>
<th>Bacteria</th>
<th>Estimated total Cases</th>
<th>% Foodborne transmission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Campylobacter spp</td>
<td>2,453,926</td>
<td>80</td>
</tr>
<tr>
<td><em>Salmonella</em> nonsyphioidal</td>
<td>1,412,498</td>
<td>95</td>
</tr>
<tr>
<td><em>Shigella</em> spp</td>
<td>448,240</td>
<td>20</td>
</tr>
<tr>
<td><em>Clostridium perfringens</em></td>
<td>248,520</td>
<td>100</td>
</tr>
<tr>
<td><em>Staphylococcus</em> food poisoning</td>
<td>185,060</td>
<td>100</td>
</tr>
<tr>
<td><em>Yersinia enterocolitica</em></td>
<td>96,368</td>
<td>90</td>
</tr>
<tr>
<td><em>E. coli</em>, antitoxigenic</td>
<td>79,420</td>
<td>70</td>
</tr>
<tr>
<td><em>E. coli</em>, other diarrheogenic</td>
<td>79,420</td>
<td>100</td>
</tr>
<tr>
<td><em>Escherichia coli</em> O157:H7</td>
<td>79,420</td>
<td>85</td>
</tr>
<tr>
<td><em>E. coli</em>, non-O157:H7 STEC</td>
<td>36,740</td>
<td>85</td>
</tr>
<tr>
<td><em>Listeria monocytogenes</em></td>
<td>2,518</td>
<td>99</td>
</tr>
<tr>
<td><em>Salmonella</em> Typhi</td>
<td>824</td>
<td>80</td>
</tr>
<tr>
<td>Other Bacteria</td>
<td>85,920</td>
<td></td>
</tr>
<tr>
<td>Subtotal</td>
<td>5,204,934</td>
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</table>

Mead et al, 1999


**HACCP: Hazard Analysis Critical Control Point**
- An approach to food safety that involves evaluation and prevention of hazards from the farm to the table
- A preventative system of quality/safety control

Pathogenic bacteria of primary concern and impact on regulations
- *Escherichia coli* O157:H7: HUS, acid resistant
- *Clostridium perfringens*: spore former, designed cooling parameters
- *Salmonella* sp.: relatively heat resistant, designed pasteurization time/temperatures
- *Staphylococcus aureus*: heat stable toxin
- *Listeria monocytogenes*: G+, survives well in food processing environments

7 Steps of HACCP

1. Hazard Analysis
2. Determine Critical Control Points (CCPs)
   - CCP: any point where loss of control could result in an unacceptable food safety risk
3. Establish Critical Limits (CLs)
4. Establish Monitoring Procedures
5. Establish Corrective Action (CA)
6. Establish Effective Record-Keeping Systems
7. Establish Procedures for verification
Pasteurization Kill Step

<table>
<thead>
<tr>
<th>Temperature, °F</th>
<th>Time</th>
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<tr>
<td>130</td>
<td>112 min.</td>
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<tr>
<td>135</td>
<td>36 min.</td>
</tr>
<tr>
<td>140</td>
<td>12 min.</td>
</tr>
<tr>
<td>145</td>
<td>4 min.</td>
</tr>
<tr>
<td>150</td>
<td>67 sec.</td>
</tr>
<tr>
<td>155</td>
<td>22 sec.</td>
</tr>
<tr>
<td>160</td>
<td>0 sec.</td>
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</table>

Milk Pasteurization

<table>
<thead>
<tr>
<th>Temperature, °F</th>
<th>Time</th>
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</thead>
<tbody>
<tr>
<td>145</td>
<td>80 min.</td>
</tr>
<tr>
<td>161</td>
<td>15 sec.</td>
</tr>
<tr>
<td>190</td>
<td>1 sec.</td>
</tr>
<tr>
<td>194</td>
<td>0.5 sec.</td>
</tr>
<tr>
<td>201</td>
<td>0.1 sec.</td>
</tr>
<tr>
<td>204</td>
<td>0.5 sec.</td>
</tr>
<tr>
<td>212</td>
<td>0.01 sec.</td>
</tr>
</tbody>
</table>

Food Safety is no Accident!

- Based on scientifically valid concepts.
- Use data to determine risks.
- Zero risk is currently unattainable.
- Things will go wrong!

Thank you

Dean Finkenbinder
Manager, Consumer Health Services
Wyoming Department of Agriculture

Regulations - What’s In Place & Why

Wyoming Food, Drug & Cosmetic Safety Act
- Wyoming Statute 35-7-110-127
  (Revisions through Legislature)
- Adopt by reference:
  Code of Federal Regulations
- Title 9 & 21
  - Federal Meat Inspection Act
  - Poultry Products Inspection Act

Wyoming Food Safety Rule
(Revisions through Amendments)
- FDA Food Code (Model)
Why do we have regulations?
1) Scientific evidence
2) Bad actors
3) No guarantees

Regulations effect on local foods
1) What can be sold without a license and inspection
2) When a license and inspection is required

Values behind the local food movement
- Quality and freshness
- Food safety
  - Producer-consumer relationships based on transparency, trust and direct accountability
- Community
  - Support local businesses and local economy
  - Producers and consumers building strong community, not simply economic relationship
- Humane treatment of farm animals
- Fair treatment of farm workers
- Environmental stewardship
- Food security
  - Reduce vulnerability in our food system
  - No food deserts (rural or urban)
Failures of the existing agri-food system to provide these values has stimulated a search for alternatives.

With organics now largely captured by dominant agri-food system, local food movement is latest manifestation of alternative.

Challenges for the local alternative

- Producing adequate supplies and diversity of food year-round
- Affordability of local food – finding efficiencies that are compatible with values
- Competition with highly subsidized industrial food system
- Policies and regulations designed for large-scale, industrial agri-food system

If we are to encourage more local food production, we need to design food safety policies and regulations that fit the scale and realities of local producers

Thank you

Marla Petersen
Manager
Big Hollow Food Co-op
Laramie

Big Hollow Food Co-op

- Retail outlet for local producers
- Membership owned
- Currently providing local produce, eggs, milk, meat and other items to the Laramie community
Challenges of local producers

- Lack of clear guidelines or the regulations
- Regulations tend to favor large producers
- Different regulations from state to state—crossing state lines

Challenges of local producers

- Cost of doing business—the real cost of food
- Distribution
- Proximity of facilities for producers
- Product safety

Challenges of being a retailer selling local foods

- Education of the customer about the value/cost of local products
- Product availability
- Supply and demand
- Clear understanding of regulations

Thank you

Jill Klawonn
Co-owner/operator, High Point Bison
Pine Bluffs, Wyoming

A Producer’s Challenges on Providing Safe, Available & Affordable Red Meat to Local Consumers

1. Information
A. Availability
B. Different information from the same office
C. Expense of licensing
2. USDA Processor
   A. Distance
   B. Expense
   C. Amenable Species Act / Farm Bill

3. Liability
   A. Insurance expenses & requirements
   B. Risk tolerance

4. Marketing Issues
   A. Retail outlets
   B. Farmers’ markets
   C. Consumer direct

5. Suggested Changes
   A. Help a Wyoming processor gain USDA status
   B. Funding options for insurance and infrastructure
   C. Legislative support for changing Amenable Species Act

Thank you

Food Safety vs. Food Freedom
Renée Gebault King
Meat & Food Science Instructor
Sheridan College
Affordability of Local Food

- Historically
  - Consumers spent upwards of 25% of their disposable income on food
  - Farmers earned a sustainable income from food sales
- Today
  - Consumers spend <10% of their disposable income on food—a very small percentage compared to the rest of the world
  - Farmers typically earn <$0.20 for every $1.00 paid by the consumer for food

Access to Local Food

- Historically
  - Communities once supported themselves almost entirely with local food production
  - Rural economies thrived and fed themselves
  - Consumers knew their farmers
- Today
  - Communities rely primarily on large-scale, decentralized food production and distribution systems
  - Most of our food travels an average of 1500–3000 miles to reach us
  - Consumers are disconnected from production agriculture

Safety and Local Food

- Historically
  - Foodborne illness has always been a concern
  - Unregulated use of toxic food colorants and chemical preservatives was common practice
  - Sanitation practices were primitive
- Today
  - Consumers enjoy a safe, clean food supply
  - Cutting-edge science is used to enhance the safety of food processing and distribution
  - A safe, sanitary food supply enhances commerce

How do we achieve SAFETY & provide consumers CHOICE?

- Open a dialogue
- Understand the other side of the issue
- Work with your local legislators and food professionals to find common ground
- Recognize the contributions of modern food science to food safety

Thank you to all presenters

Audience Questions / Comments?