Welcome to
Florida Small Farms and Alternative Enterprises Conference

Food Safety at Farmers’ Markets

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COLLEGE OF ENGINEERING SCIENCES, TECHNOLOGY AND AGRICULTURE
UNIVERSITY

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For more information on Small Farms, visit our website at: http://smallfarms.ifas.ufl.edu/ or contact your local County Extension Agent.

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FOOD SAFETY AT FARMERS’ MARKETS

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WHAT WILL WE TALK ABOUT?

- Farmers’ markets and food safety
- Common culprits of foodborne illnesses
- Potential sources of contamination
- Recommendations for each potential source
- FL farmers’ markets – common practices
WHY PEOPLE LOVE FARMERS’ MARKET

- Source for fresh, locally grown produce
- Direct connection between farmers and consumers
- Support for local economy
- Perception that foods from farmers’ markets are safer
ARE FOOD FROM FARMERS’ MARKERS SAFER?

- Positive Aspects:
  - Short supply chain
  - Direct contact with growers

- Negative Aspects:
  - Lack of regulations and inspections
  - Exemption from new proposed produce safety rules
  - Lack of food safety education resources
  - Risky practices
WHY IS FOOD SAFETY IMPORTANT?

- Every year, it is estimated that foodborne pathogens cause:
  - 48 million foodborne illnesses
  - 130,000 hospitalizations
  - 3,000 deaths

3 TYPES OF BIOLOGICAL HAZARDS

Bacteria (E. coli, Salmonella, Shigella, Listeria, etc.)

Viruses (Hepatitis A, Norovirus, Rotavirus)

Parasites (Cyclspora, Giardia, Cryptosporidium, etc.)
## MAJOR CULPRITS OF FOODBORNE ILLNESS

### Table 2. Top five pathogens causing domestically acquired foodborne illnesses

<table>
<thead>
<tr>
<th>Pathogen</th>
<th>Estimated annual number of illnesses</th>
<th>90% Credible Interval</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Norovirus</td>
<td>5,461,731</td>
<td>3,227,078–8,309,480</td>
<td>58</td>
</tr>
<tr>
<td>Salmonella, nontyphoidal</td>
<td>1,027,561</td>
<td>644,786–1,679,667</td>
<td>11</td>
</tr>
<tr>
<td>Clostridium perfringens</td>
<td>965,958</td>
<td>192,316–2,483,309</td>
<td>10</td>
</tr>
<tr>
<td>Campylobacter spp.</td>
<td>845,024</td>
<td>337,031–1,611,083</td>
<td>9</td>
</tr>
<tr>
<td>Staphylococcus aureus</td>
<td>241,148</td>
<td>72,341–529,417</td>
<td>3</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td></td>
<td></td>
<td>91</td>
</tr>
</tbody>
</table>

# Major Culprits of Foodborne Illness

<table>
<thead>
<tr>
<th></th>
<th>Cases</th>
<th>Hospitalization</th>
<th>Death</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cases</td>
<td>Rate (%)</td>
<td>Cases</td>
</tr>
<tr>
<td>Campylobacter spp.</td>
<td>845,024</td>
<td>8,463</td>
<td>17</td>
</tr>
<tr>
<td>Listeria monocytogenes</td>
<td>1,591</td>
<td>1,455</td>
<td>94</td>
</tr>
<tr>
<td>Salmonella spp.</td>
<td>1,027,561</td>
<td>19,336</td>
<td>27</td>
</tr>
<tr>
<td>E. coli O157:H7</td>
<td>63,153</td>
<td>2,138</td>
<td>46</td>
</tr>
<tr>
<td>Other STEC*</td>
<td>112,752</td>
<td>271</td>
<td>13</td>
</tr>
</tbody>
</table>

*STEC: Shiga toxin-producing E coli

POTENTIAL SOURCE OF CONTAMINATION

1. Water
   • For rinsing food products
   • For hand washing
   • (e.g.) Using contaminated well water for food preparation and drinking in county fair in 1999
1. Water - Recommendations
   - All water should be potable
   - If not from municipal source, all sources should have microbiological testing
   - Testing should be done before each season opening and as often as possible afterwards
   - All water sources should have sign for their potability.
2. Products

- Produce can be contaminated during growing
- Improper washing
- Processed food not complying with regulations
2. Products - Recommendations

• Producers should produce, harvest and handle produce following Good Agricultural Practices (GAPs)
• GAPs-compliant growers can consider marketing impact.
• All produce from the fields should be rinsed under running water or in a sink/tank containing a food-grade disinfectant
• All waters used in post-harvest handling should be potable.
2. Products – Recommendations Cont’d

- Signs should be posted to thoroughly rinse all produce before consumption
- Processed foods must be produced under regulations of FDACS and/or FDBPR
3. Animals

- Dander, hair, saliva, urine and feces can easily contaminate foods
- Direct or indirect (though people) contamination
- Some animals are pathogen carriers
3. Animals - Recommendations

• Markets should be animal-free (except service animals)
• Should have a designated area for animal hygiene and hand washing station
• If allowed, animals should be on a short leash and under the owner’s control at all times
3. Animals – Recommendations (Cont’d)

- Live animals for display or for sale should be kept segregated from foods sold in the market
- No eating allowed in the animal display area
4. Vendor Hygiene

- Good vendor hygiene is a marketing tool (food safety precaution)
- One of the main causes for foodborne illnesses
4. Vendor Hygiene - Recommendations

- All vendors should have clean body, hair, and clothes
- All vendors should be free from any sign of illness or open sores
- All vendors should wash their hands before work and anytime they get dirty
- No smoking should be allowed while selling/handling food
- Hand-washing facility should be nearby and accessible.
5. Consumer contamination

- Dirty hands
- Sneezes
- Children
- Lack of education
5. Consumer contamination - Recommendations

- Hand-washing facility available within the market for consumers
- Signs encouraging consumers to wash their hands and to wash produce before consumption
- Vendors should provide supervision over their display and remove any products potentially contaminated
6. Product Display/Practice at the market
   - Display heights
   - Display materials
   - Raw meat displays
   - Shopping bags/Egg cartons
   - Storage temperature of processed foods
6. Product Display/Practice at the market - Recommendations

- All foods should be kept off the ground during display.
- Raw meats/eggs should be kept separated from other foods.
- Storage and display containers/surfaces should be cleaned and sanitized before each use.
6. Product Display/Practice at the market — Recommendations (Cont’d)

- Bags should be new and free from chemicals.
- New egg carton is the most preferable. If reused, cartons should be clean and free of any residue and all marking/statement should be re-labeled.
- Storage and display containers-surfaces should be cleaned and sanitized before each use.
- Eggs need to be held at 45°F or below.
6. Product Display/Practice at the market – Recommendations (Cont’d)

- Keep hot food hot (140°F or above), cold food cold (41°F or below).
- Processed foods and ready-to-eat foods must be prepackaged and labeled properly.
7. Transportation

- Exposure to dirt, dust
- Use of transportation for non-food items
- Transporting mixed items
- Temperature abuse during transportation
- Reuse of crates/boxes
7. Transportation - Recommendations

- Vehicles to transport food products should be free from potential contaminants
- All loads should be properly covered or enclosed.
- Keep hot foods hot, cold foods cold during transportation
POTENTIAL SOURCE OF CONTAMINATION

8. Others

• Airborne – canopy or tent
• Weather condition
• Traceability – farm signage, farm of origin
• Food demonstration/Sample
• Trash management
WHAT IS CURRENTLY HAPPENING?

- Current Practice in FL Farmers Markets
  - 16 markers (269 vendors) in North and Central Florida surveyed
  - Location, size, type of products, bathroom and hand-washing facility, trash management, animal access etc.
<table>
<thead>
<tr>
<th>Market 124 Demographic</th>
<th>Market 134 Demographic</th>
<th>Market 604 Demographic</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Booths</strong></td>
<td>45</td>
<td><strong>Total Booths</strong></td>
</tr>
<tr>
<td><strong>Food Booths</strong></td>
<td>30</td>
<td><strong>Food Booths</strong></td>
</tr>
<tr>
<td><strong>Cottage Food Booths</strong></td>
<td>5</td>
<td><strong>Cottage Food Booths</strong></td>
</tr>
<tr>
<td><strong>Population</strong></td>
<td>300</td>
<td><strong>Population</strong></td>
</tr>
</tbody>
</table>

**Vendor Segregation among food** | N | **Vendor Segregation among food** | N |

| **Raw meat present** | Y | **Ad signs** | Y |
| **Pets Present** | Y | **Pets Present** | Y |
| **Eating area** | Y | **Eating area** | N |

| **Animals allowed in** | Y | **Instructional Signs** | N |
| **Bathroom** | Y | **Sink** | Y |

| **Soap** | Y | **Sanitizer** | Y |
| **Trash** | Y | **Bathroom** | Y |

| **Booths w/stands** | 0 | **Booths w/sanitizer** | 0 |
| **Booths w/trash** | 9 | **Booths w/trash** | 4 |

| **Booths w/gloves-tongs** | 4 | **Booths w/gloves-tongs** | 2 |
| **Booths w/o covering** | 4 | **Booths w/o covering** | 2 |

| **Vendors w/sores** | 0 | **Vendors w/sores** | 0 |
| **Test-taste samples** | 6 | **Test-taste samples** | 7 |

| **Compliant?** | 0 | **Compliant?** | 0 |

| **Location** | Park | **Location** | Park |

| **Vendor Segregation among food** | N | **Vendor Segregation among food** | N |

| **Raw meat present** | Y | **Raw meat present** | Y |
| **Ad signs** | Y | **Ad signs** | Y |

| **Pets Present** | Y | **Pets Present** | Y |
| **Eating area** | N | **Eating area** | N |

| **Vertical Signs** | Y | **Bathroom** | N |
| **Sink** | N | **Bathroom** | N |

| **Booths w/sanitizer** | 2 | **Booths w/trash** | 15 |
| **Booths w/gloves-tongs** | 5 | **Booths w/o covering** | 2 |

| **Vendors w/sores** | 0 | **Test-taste samples** | 10 |
| **Compliant?** | 1 | **Compliant?** | 1 |
WHAT IS CURRENTLY HAPPENING?

- Free Samples
  - Can I serve free samples of my Cottage Food Products?
    - Samples can be served as long as your product meets the requirements of “cottage food” and is a non-potentially hazardous food. Samples must be pre-packaged in your home kitchen (e.g., cut and individually packaged at home).

- Prevalence of samples at market? 60/269

- How many are compliant? 0
WHAT IS CURRENTLY HAPPENING?

- Markets with animals found: 11/16
  - Types seen: Dogs, pigs, turkeys, monkey, birds
- Markets with eating area: 4/16
  - How many were animals seen from? All
- Percentage of markets with accessible bathrooms on site: 5/16
  - How many have hand-washing signs: 1
- # of vendors with hand sanitizer: 15/269
WHAT IS CURRENTLY HAPPENING?

- How do the vendors market their product:
  - Free-trade, Organic, Chemical free, Eco-friendly, Natural, Local, Non-GMO, Gluten-free, 0 trans fat
- What about food safety???
TAKE HOME MESSAGES

- Food safety is important for public health but also can have great marketing impact.
- There is a room for improvement – hand-washing facility, signs, education....
- Educate vendors and educate consumers
QUESTIONS?

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