Good Agricultural Practices and FSMA Produce Safety Rule

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Food is the link between agriculture and health.
Consumer trends

• Increase produce consumption
• More interest in consuming produce raw
• Food and medicine
• Food safety is a public health concern
Why Farm Food Safety?

- Food safety is important to everyone
- CDC estimates each year in the US:
  - 48 million sick (1 in 6)
  - 128,000 hospitalized
  - 3,000 die
- Lifetime disorders

Source: CDC
Produce Related Outbreaks

FDA Outbreaks Linked to Produce Contamination Likely Prior to Retail: 1996–2014

- Sprouts, 43 (25%)
- Leafy Greens, 44 (25%)
- Tomatoes, 18 (10%)
- Melons (Cantaloupe and Honeydew), 17 (10%)
- Berries*, 10 (6%)
- Herbs (Basil, Parsley, Cilantro), 8 (5%)
- Cucumbers, 4 (2%)
- Green Onions, 3 (2%)
- Mangos, 3 (2%)
- Almonds, 2 (1%)
- Grapes, 2 (1%)
- Papayas, 2 (1%)
- Other***, 7 (4%)
- Unknown+, 8 (5%)
- Multiple**, 2 (1%)

Source: Produce Safety Alliance curriculum
Microorganisms of Concern in Fresh Produce

• Bacteria
  • Salmonella, toxigenic E. coli, Shigella, Listeria monocytogenes

• Viruses
  • Norovirus, Hepatitis A

• Parasites
  • Giardia lamblia, Cryptosporidium parvum, Cyclospora caytenanesis, Toxoplasma gondii
  • Rat lungworm (Angiostronglyasis cantonensis)
Sources of Contamination

- Humans
- Soil
- Produce
- Animals
- Water
- Buildings
- Equipment
- Tools
Good Agricultural Practices and FSMA

Preventative, science and risk-based reduction guidelines
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<th>Good Agricultural Practices (GAPs)</th>
<th>Food Safety Modernization Act</th>
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<tr>
<td>Educational, Voluntary, fee</td>
<td>Regulatory, with exemptions, no charge</td>
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<td>Land use</td>
<td>Agricultural water</td>
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<td>Worker health &amp; hygiene</td>
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<td>Wildlife, domesticated animals and land use</td>
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<td>Domesticated and wild animals</td>
<td>Post Harvest Handling and Sanitation</td>
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<td><strong>Crop protection &amp; worker protection</strong></td>
<td>Recordkeeping</td>
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<td>Field, equipment, transportation sanitation</td>
<td><strong>Inspection</strong></td>
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<td><strong>Agro-security &amp; Traceability</strong></td>
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<td><strong>Food safety plan</strong> and recordkeeping</td>
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<td><strong>Audit &amp; passing score for certification</strong></td>
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Worker Health and Hygiene

• Sources of contamination - direct and indirect (cross-contamination)

Photos: Produce Safety Alliance curriculum
Fecal-Oral Route
Soil Amendments

Apply chemical, biological, or physical materials for soil health and plant growth appropriately.
Agricultural Water

Lower Risk

Public Water Supply
Treated

Ground Water

Higher Risk

Surface Water
Open to Environment
Agricultural and Post Harvest Water

* All ag water must be safe and of adequate sanitary quality for its intended use!*

GM: <126 CFU/100ml
STV: <410 CFU/100 ml

0 ~ CFU/100 ml
Water Testing, Corrective Action & Recordkeeping
Wildlife, Domesticated Animals & Land Use
Wildlife, Domesticated Animals & Land Use

• Wildlife Deterrents- decoys, netting and fencing
Wildlife, Domesticated Animals & Land Use

Monitor and deter
Postharvest Handling & Sanitation
Risk Assessment and Risk Management

1. Assess Produce Safety Risks
2. Implement Practices
3. Monitor Practices
4. Use Corrective Actions
5. Keep Records
Rat Lungworm Disease (Angiostrongyliasis)
https://agsci.oregonstate.edu/wrcefs
Questions?

Mahalo!
Where can produce get contaminated?

Humans

Animals

Produce

Buildings

Equipment

Tools

Soil

Water
Is this a problem?

Manure in contact

Edible portion
Is this considered Ag water under FSMA?