



**ALLIANCE FOR
ADVANCED SANITATION**

Background

- ❑ Food Safety Modernization Act – High focus on sanitation
- ❑ Recalls related to sanitation issues – Costly
- ❑ Innovation in sanitation related to equipment design
- ❑ Sanitation heavily relies on personnel

The Alliance is a public-private partnership between industry and academia under the auspices of the University of Nebraska to further research, education and innovation in Sanitation.



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Recall Costs

626 Food recalls in 2015

- Milk/dairy - 82
- Peanuts - 49
- Eggs - 42
- Wheat/gluten - 34

\$ 100,000 - \$12million per recall

Top Reasons for Recalls

- Product not processed/cooked properly
- Supply chain issues
- Not following own procedures and policies
- Training deficiencies
- Sanitation issues



Sanitation is a Common Challenge in Manufacturing

- ☐ Poor plant design and construction
- ☐ Contamination of raw materials
- ☐ Deficient Employee Training
- ☐ Poor Plant Equipment Sanitation
- ☐ Difficult-to-clean equipment
- ☐ Post process contamination at manufacturing plant
- ☐ Contamination during processing
- ☐ Poor employee hygiene

Cost of Illness Estimates (2013)	<i>Campylobacter</i> (all species)	<i>Salmonella</i> (non-typhoidal)	<i>Listeria monocytogenes</i>	<i>E.coli</i> O157
Number of Cases	845,024.00	1,027,561.00	1,591.00	63,153.00
Total Cost of Illness	\$ 1,928,787,166.00	\$ 3,666,600,031.17	\$ 2,834,444,202.28	\$ 271,418,690.00

<http://www.fda.gov/downloads/food/guidanceregulation/fsma/ucm334117.pdf>

Research, Innovation, Workforce Development

- ☐ Methods Development (eg. Dry Cleaning Technologies, Evaluating Chemical and Biomaterials for Specific Cleaning Applications)
- ☐ Developing, Testing and Prototyping of Novel Materials for Food Processing Applications
- ☐ Enzyme and Bio-Based Pathogen Control Systems
- ☐ Effective natural solutions to progress sustainability and environmental stewardship efforts.
- ☐ Automation and Sensors
- ☐ Improved, temperature, pressure, loss of pressure, potency, pH detection.
- ☐ Food Equipment Re-Use and Re-Purpose Standards
- ☐ Guidance, standards and tools to enable risk based food equipment re-purposing and re-use scenarios.
- ☐ Green Technologies,
- ☐ Process and platform based approach, rather than one plant/one process at time.
- ☐ Environmental Monitoring
- ☐ Next Generation sequencing technologies



- ❑ More than vocational training
- ❑ Workforce evolution for future jobs (scrubbing → automated facility management)



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University of Nebraska

Food Science and Technology

Departments of Agricultural Economics

Agronomy and Horticulture

Animal Science

Biological Systems Engineering

Chemistry

Electrical Engineering

Chemical Engineering

Food Science and Technology

Mechanical and Materials Engineering

Statistics

Veterinary Medicine and Biomedical Sciences

Durham School of Architectural Engineering and Construction



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