

# Innovations in Microbial Food Safety

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# OUTLINE:

- Potential Hazards in Foods
  - Physical
  - Chemical
  - **MICROBIOLOGICAL**
- Food Safety Programs
  - Good Agricultural Practices
  - Hazard Analysis Critical Control Points (HACCP)
  - Retail food safety
  - Roadside certification



# Potential Food Hazards:

- Physical
  - Ex. Metal, wood, plastic
- Chemical
  - Ex. Melamine in wheat gluten/rice protein shipped from china
    - Pet Food
- Microbiological
  - Ex. bacteria, viruses, parasites



# Sources of Microbial Food Hazards:

- Environmental
  - *Listeria monocytogenes*
  - *Bacillus cereus*
  - *Clostridium* species
- Animal
  - *Salmonella* species
  - Enterohemorrhagic *E. coli*
  - *Campylobacter* species
- Human
  - *Staphylococcus aureus*
  - *Shigella* species
  - Viruses



# Controls for Microbial Food Hazards:

- Food **SAFETY** programs
  - On Farm Food Safety
  - Processing Plant programs (HACCP)
  - Retail food safety
  
- Proper food handling
  - Adequate Cooking / Refrigeration
  - Hand washing
  - Prevention of cross contamination



# Good Agricultural Practices:

- On Farm Food Safety Program
- Reduction of microbial contamination risk through proper protocols regarding:
  - Selection of planting sites
  - Handling manure / fertilizers
  - Use of potable water sources for irrigation and pesticide application
  - Use of safe irrigation methods
  - Good hygiene, handwashing practices
  - Field sanitation and animal exclusion



# Hazard Analysis Critical Control Points:

- Food SAFETY program (not quality)
- Identify the hazards that may be associated with the food.
- Determine critical steps (Critical Control Points) in the process of production where if a control was initiated, that hazard would not occur.
  - Cooking step
  - Refrigeration step
  - Metal detector

# Hazard Analysis Critical Control Points:

- Program Required for:
  - Meat and Poultry
  - Seafood
  - Juices
- Used in a Variety of others:
  - Dairy
  - Retail operations
  - Food Service



# Retail Employee Trainings:

- ServSafe: National Restaurant Association
  - Certifies restaurant managers I
- Various other certifications
  - Shorter ServSafe trainings
    - Employees
  - Cooking for crowds or large quantities of people
    - Occasional cooks



# Innovations in Virginia:

- Virginia's Farm Market Certification program
  - Farm stands and markets
  - Must grow 51% of what they sell or purchase within 25-50 mile radius.
  - Participate in GAPS food safety
  - Consumers will perceive certified markets as more reputable.





**THANK  
YOU!!**