University of Nebraska Lincoln

HACCP Principle 1: Conduct a Hazard Analysis

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Hazard Analysis

- Prepare a List of Hazards that are of "such significance that they are reasonable likely to cause injury or illness if not effectively controlled."
- Describe Control Measures
  - Not all hazards can be prevented, but virtually all can be controlled

Hazard Analysis

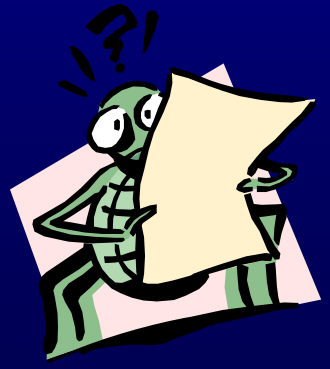
Hazard Analysis

Product: Ground Meats

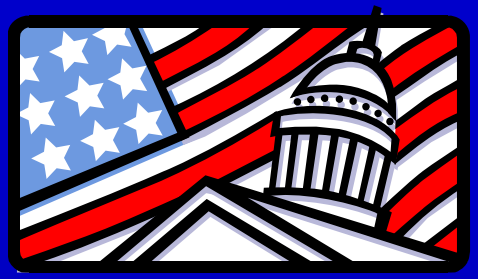
Process Step	Potential hazard introduced, controlled or enhanced at this step B= Biological C= Chemical P= Physical	Should the hazard be addressed in the HACCP plan?	Justification for decision.	What control measures can be applied to prevent the significant hazards?
Step 1: Receive Fresh Beef and Pork Trim	B- Pathogens on incoming material C- Hydraulic fluid, oil P- Foreign materials, hooks, bones, plastic	**B- Yes** C- No P- No	B - Potentially high severity, high occurrence C- Low occurrence, according to plant experience,; Low severity. P- Low occurrence, according to plant; Low severity.	B- Temperature control of product.

Important!!!

- **If Hazard Analysis is not done Correctly:**
  - **Hazards warranting control are not Identified**
  - **Plan will not be effective even if it is carefully followed**

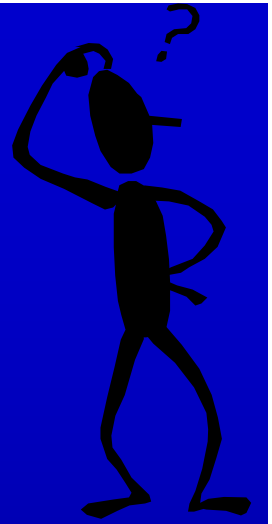


FSIS Definition



- "Reasonably Likely to Occur"
  - "If a problem has occurred more than once, …agency will deem hazard reasonable likely to occur, even if no demonstrable health risk"
- "Control" "Absence of Control"
  - "…if an establishment institutes a control, the control should be a CCP"

What Does This Mean?



- If there is a hazard that is "reasonably likely to occur" and the control measure is within your establishment then it is a CCP.

- Regulatory HACCP!

Food Safety Hazards

- **ZERO TOLERANCE -**
- **FSIS regards its requirements for no visible feces on carcasses as food safety "performance standards"**
- **Companies are "obliged" to include CCP's to assure that the standard is met.**

Purpose of Hazard Analysis

- Identify Significant Hazards and Control Measures
- Can be used to Modify a Process or Product to Further Assure or Improve Safety
- Basis for Determining Critical Control Points (CCP)

Hazard Analysis

- Series of Questions to Determine Factors that Effect the Safety of the Product
- Questions Vary Depending on Product and Process

Two Steps of Hazard Analysis

1. **Hazard Identification**
   - **“Brainstorm”**
   - **List all Potential Hazards**
2. **Hazard Evaluation**
   - **Base on Severity and Likelihood of Occurrence**
   - **Consider Short Term and Long Term Exposure**

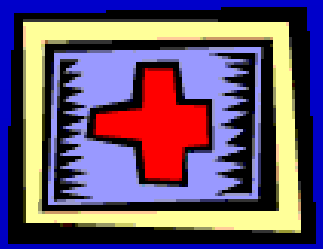
Hazards:

- **Significant - Low Risk Hazards Usually Addressed in GMP and/or SSOP's.**
- **Likely to Occur**
- **Prevention, Elimination or Reduction to Acceptable Levels is Essential to Produce a Safe Product**
- **Do NOT include Quality Concerns**

Significance of Hazard

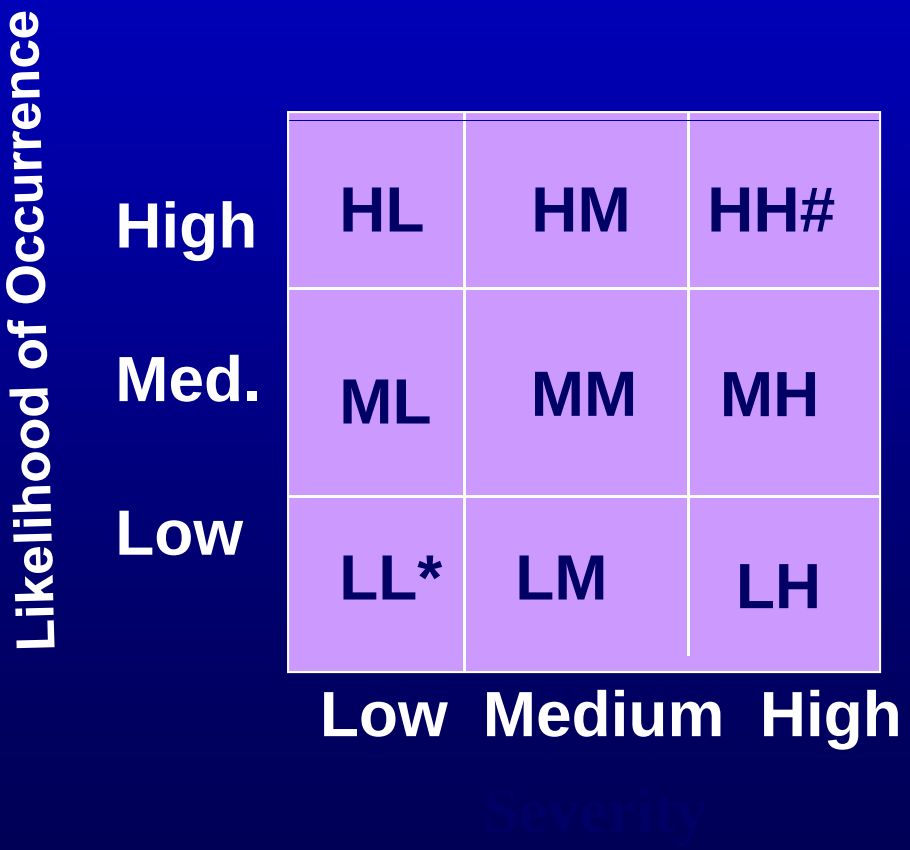
- Severity
  - Magnitude and Duration of illness
  - Public Health Impact
- Occurrence
  - Experience
  - Epidemiological Data
  - Information in Technical Literature

Determining Risk



- An estimate of likely occurrence of hazard
- Based on - Experience, epidemiological data, and other information from the scientific literature.
- Severity is the seriousness of the risk.

Severity and Likelihood



#Probably Yes
*Probably No

Potential Questions:

- Does the food contain ingredients that might cause microbiological, physical or chemical hazards?
- Which intrinsic factors must be controlled to assure food safety?
- Have there been food-borne outbreaks associated with this product?
- Is there a “kill step” in the process to control pathogens?

Hazard Analysis

Hazard Analysis **Product:** Ground Meats				
Process Step	**Potential hazard introduced, controlled or enhanced at this step** **B= Biological** **C= Chemical** **P= Physical**	**Should the hazard be addressed in the HACCP plan?**	**Justification for decision.**	**What control measures can be applied to prevent the significant hazards?**
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Potential Questions

- Is there potential for recontamination after processing?
- What is the microbial content of the food? Does it change during storage?
- Does the equipment function properly to destroy microbial hazards?
- Can equipment be properly sanitized?
- Are employees trained to handle food safely?

Control Measures

- Physical/Chemical or Other Factors that can be used to Control Hazard
- May be More than one Control for Each Hazard
- Each Control Measure may Control More than one Hazard

Important

- **Each Hazard Must be Considered and Documentation must be Provided.**
- **Identification of a Hazards is NOT an exact Process. It is Debatable.**
- **Must rely on Expert Opinion, Epidemiological Data, and Scientific Literature to Come to a Logical Decision.**

Group Exercise

- List Process Steps on Hazard Analysis Worksheet.
- Identify all Chemical, Physical, and/or Biological Hazards Associated with each Step.
- Determine if Hazard Significant.
- Document why a hazard was determined to be significant/insignificant.
- Cross Insignificant Hazards off List.
- Identify Control Measures for each Significant Hazard.