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Hazard Analysis & Critical Control Points (HACCP) to Manage FMD and Food Safety Risks along Beef Value Chains

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HACCP (Hazard Analysis and Critical Control Points)

A systematic approach to the
identification, evaluation and
control of food safety hazards



Important HACCP Points

- Is preventive, not reactive
- Is a management tool used to protect the food supply against biological, chemical and physical hazards.
- Is not a zero-risk system.
- It is designed to minimize the risk of food safety hazards, NOT concerned with quality



HACCP

- A system for food safety control
 - Not stand-alone, must be built upon key prerequisite programs along the whole value chain
 - GAPs (Good Agricultural Practices)
 - cGMPs (current Good Manufacturing Practices)
 - SSOPs (Sanitation Standard Operating Procedures)





The HACCP Approach

- HACCP assures food safety by establishing control over the process, raw materials, the environment and the people, rather than by conducting extensive destructive tests of end product and raw materials.



Benefits of HACCP

For consumer \Rightarrow safety

For processor \Rightarrow protection, continuous monitoring of CCPs, safety records, history

For regulator \Rightarrow focused inspection, faster verification



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HACCP for the Food Industry

Accepted as the international standard for food safety assurance (WTO, Codex)

U.S. implementation dates:

Seafood	1996
Meat & Poultry	1997-99
Juices & Juice Products	2002-04

Voluntary HACCP
Milk



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HACCP Objective

- The objective is to make the product safely
- And to be able to prove it
 - Plan
 - Control
 - Document

**Proactive, prevention-oriented
program based
on sound science**



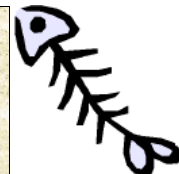
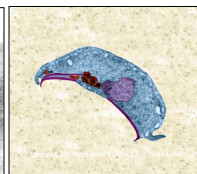
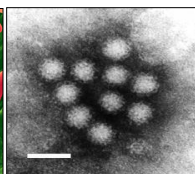
Important Points to Remember

- HACCP
 - Emphasizes process control
 - Looks at CRITICAL points for safety
 - Stresses communication



Food Safety Hazards

- HACCP concept covers all types of potential food safety hazards:
 - Biological – bacteria, viral, & parasites
 - Physical -- foreign matter – glass, metal
 - Chemical -- toxic compounds including natural toxins





Seven Principles of HACCP

- Conduct a hazard analysis.
- Determine the critical control points (CCPs) in the process.
- Establish critical limits.
- Establish monitoring procedures.
- Establish corrective actions.
- Establish verification and validation procedures.
- Establish record-keeping and documentation procedures.

Hazard Analysis for Ground Beef

Hazard Analysis				
Product: Raw, Other				
Process Step	Potential hazard introduced, controlled or enhanced at this step B= Biological C= Chemical P= Physical	Does this potential hazard need to be addressed in the HACCP plan? (Yes or No)	Justification for decision made in previous column	What control measures can be applied to prevent, eliminate or reduce the hazards being addressed in the HACCP plan?
Receiving of lean trim or subprimals from outside operations	B - Presence and growth of pathogens	Yes	Meat is a known source of pathogens and growth of pathogens could cause severe illness	Reduce temperatures to prevent growth of pathogenic bacteria
	C -None			
	P -metal, bone, plastic	No	Low occurrence according to plant experience	
Transfer of trim from fabrication operations	B -Presence and growth of pathogens	No	Low occurrence as temperatures are controlled in fresh meat not ground HACCP plan	
	C - None			
	P -Metal	No	Low occurrence according to plant experience	
Refrigerated Storage	B -Growth of pathogens	No	Low occurrence as refrigeration units are maintained a low temperatures to prevent growth	

HACCP Plan for Ground Beef

CCP	Hazards	Critical limits	Monitoring				Corrective actions	Verification
			What	How	Frequency	Who		
CCP1 Receiving of lean trim	Presence and growth of pathogens	Meat temperature of $<4^{\circ}\text{C}$	Internal temperature of meat	Calibrated thermometer inserted between two packaged cuts from one box near the rear of the truck on each load	Each load	Receiving operator	1. If temperature is $>4^{\circ}\text{C}$, notify supervisor for rejection of shipment. 2. Determine if the problem was from trucking refrigeration or shipment of warm product by supplier. 3. Notify supplier to correct problem. 4. Notify shipping company. In all other cases comply with regulatory guidelines in CFR Section 417.3	Daily review and initializing of product receiving temperature monitoring log CCP Check the accuracy of the monitoring thermometer against the certified thermometer Calibrate the monitoring and certified thermometer annually



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HACCP and FMD

- The same HACCP principles for food are being used to control FMD. Examples:
 - Transportation
 - Motorized transportation of cattle to abattoir
 - Decontamination of cattle transport vehicle
 - Quarantine
 - 30 day holding period
 - Revaccination
 - Entry & exit health inspections
 - Abattoir
 - Ante- and post-mortem inspection
 - pH measurement of beef carcass
 - Deboning and deglandng



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Thank You!

