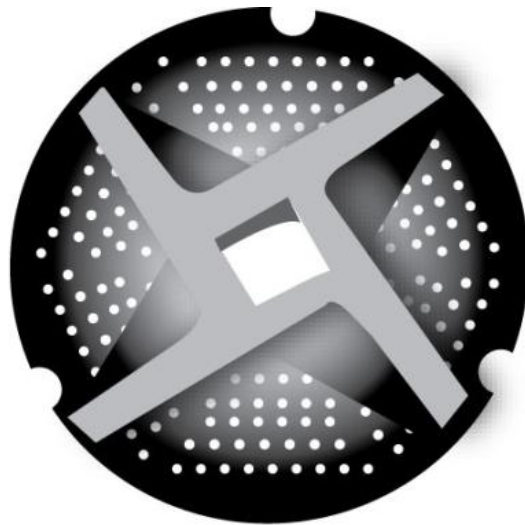# HACCP in an Hour

Dr. Jonathan Campbell, Extension Meat Specialist
Penn State University

NICHE MEAT PROCESSOR
ASSISTANCE NETWORK

May 29, 2014

www.nichemeatprocessing.org

What is HACCP?

- Hazard Analysis Critical Control Point(s)
  - Comprehensive, systematic approach to applying appropriate science based methods and technology to plan, control and <u>document</u> safe production, handling and preparation of foods

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What is HACCP?

- HACCP covers food safety issues and is applicable from farm-to-table
  - Focused more on prevention of potential hazards rather than inspection by an outside agency
  - Deals with unintentional types of hazards that may arise during production & processing

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History of HACCP

- Late 1950's – Early 1960's developed in conjunction with Pillsbury and NASA (Natick Army Laboratory)
  - Prevent foodborne illness in space program
  - Testing over half products produced
    - Cost prohibitive

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HACCP & NACMCF

- 1988 – National Advisory Committee on Microbiological Criteria for Foods (NACMCF) was formed
  - Current HACCP concepts developed
  - 7 principles issued in 1989 report

Regulatory HACCP

- December 18, 1995 – FDA issues the Seafood HACCP regulation (FR vol.60 no.242 pages 65096-65202).

  – All facilities that process seafood products for human consumption are under <u>mandatory</u> HACCP as of Dec. 1997.

Regulatory HACCP

- July 25, 1996 – Pathogen Reduction HACCP Final Ruling ("Mega Reg") passed in Federal Register (FR vol.61 no. 141 pages 38805-38989)

  – Outlined the responsibility of plant and inspection personnel

  – Major switch for burden of proof to meat processing establishment

Intent of HACCP

- HACCP regulation was "designed to reduce the … numbers of pathogenic microorganisms on meat and poultry products, reduce the incidence of foodborne illness … and provide a new framework for … meat and poultry inspection."

Source: FR vol.61 no. 141 p.38806

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HACCP Implementation

Establishment Category	Number of Employees	Implementation Date
Large	> 500	1/26/1998
Small	10 – 499	1/25/1999
Very Small	< 10	1/25/2000

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Pre-HACCP

- Assemble a 'team' of experts on the production process

- List and Describe product/s (if similar) to be produced (product description)

- Describe flow of production (flow diagram)

Product Description

PROCESS CATEGORY: SLAUGHTER

PRODUCT: BEEF

1. COMMON NAME?	BEEF; BEEF VARIETY MEATS
2. HOW IS IT TO BE USED?	CARCASSES; VARIETY MEATS
3. TYPE OF PACKAGE?	CARCASSES – NONE; VARIETY MEATS – 50 POUND BOXES
4. LENGTH OF SHELF LIFE, AT WHAT TEMPERATURE?	7 DAYS AT 40° F
5. WHERE WILL IT BE SOLD? CONSUMERS? INTENDED USE?	WHOLESALE TO DISTRIBUTORS ONLY
6. LABELING INSTRUCTIONS?	KEEP REFRIGERATED
7. IS SPECIAL DISTRIBUTION CONTROL NEEDED?	KEEP REFRIGERATED

Source: Guidebook for the Preparation of HACCP plans, USDA-FSIS 1999
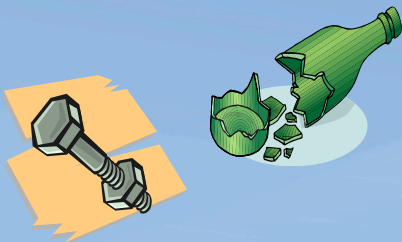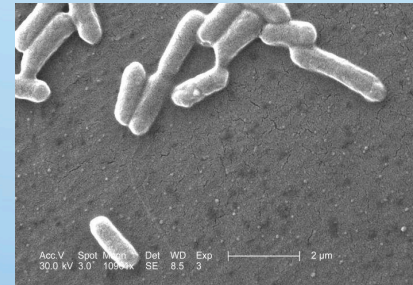
Product Flow (Flow Diagram)
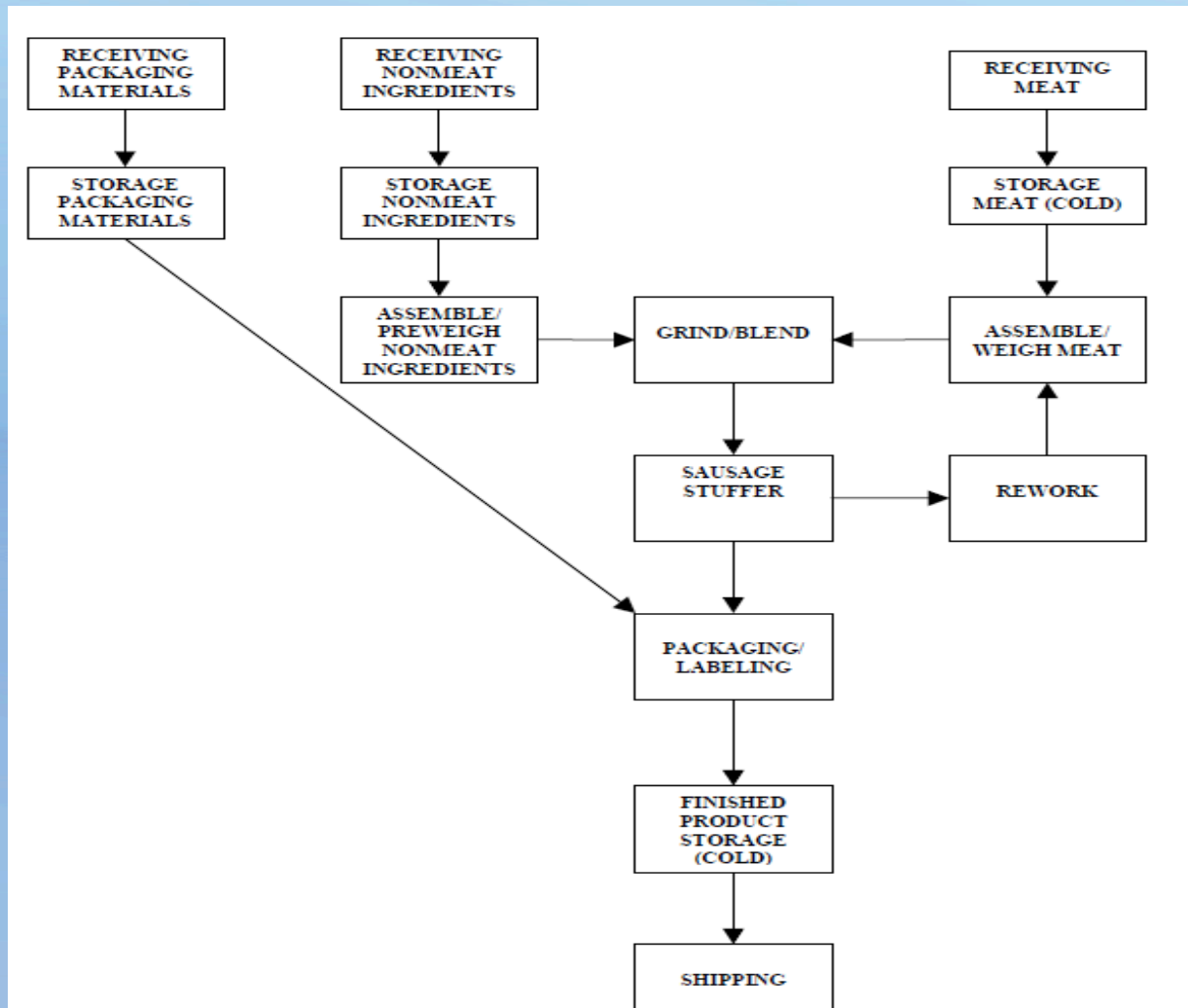
Source: Guidebook for the Preparation of HACCP plans, USDA-FSIS 1999

3 Types of Hazards

- Biological
  - Microbiological (pathogens)
- Chemical
  - Cleaning residues
- Physical
  - Foreign material (bone, metal, plastic, glass)

7 Principles of HACCP

- Hazard Analysis

- Critical Control Point

- Critical Limit

7 Principles of HACCP

- Establish Monitoring Procedures

- Establish Corrective Action Procedures

- Establish Recordkeeping Procedures

- Establish Verification Procedures

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Hazard Analysis

- Arguably most important HACCP Principle
  - List all potential hazards of ingredients, raw materials and processing steps/equipment
  - Decide if identified risk needs to be addressed

Critical Control Point

- A step in the process where control of any of the three hazard types is necessary to <u>prevent</u> the hazard from entering the process, <u>eliminate</u> the identified risk from production <u>or</u> <u>reduce to an acceptable level</u>

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Establish Critical Limits

- An identified value necessary to prevent, eliminate or reduce an identified hazard to an acceptable level at a particular critical control point

Establish Monitoring Procedures

- A series of planned observations or activities that must be performed at an established time frame (e.g. hourly) to ensure that the CCP is being properly controlled

Corrective Action

- Procedures that must be followed when failure to meet a critical limit occurs
  - Acts as a fail safe or level of redundancy to the system
  - The process should return to a state of control at the completion of the action

Recordkeeping

- Irrefutable evidence of a monitoring event during food production
  - Provides a history of production activities

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Verification Activities

- Two parts
  - Validation & Verification
- Validation
  - Determines effectiveness of plan to ensure food safety
  - Is the plan controlling what/how/by how much it is intended to?

Verification Activities

- Verification
  - Procedures to ensure the HACCP system is working as designed
  - Example – observe an employee taking a temperature

You can <u>verify</u> an in<u>valid</u> process!

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Does Everyone need HACCP?

- Yes and No

  – Some processing plants are exempt

    • Retail – comes from an inspected (HACCP) source

    • Custom – not-for-sale

HACCP – 14$^+$ Years Later

- Commonplace in most establishments
- Evolved concept to apply to quality control
- 3rd party audits (e.g. SQF) as a requisite to do business with specific retailers/customers

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Is it Working?

- Original intent was to reduce the incidence of foodborne illness.

  – only illness caused by *Salmonella spp.* & *Vibrio spp.* have had little change or increased

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Relative rates of laboratory-confirmed infections with *Campylobacter*, STEC* O157, *Listeria*, *Salmonella*, and *Vibrio* compared with 1996–1998 rates, by year — Foodborne Diseases Active Surveillance Network, United States, 1996–2012†
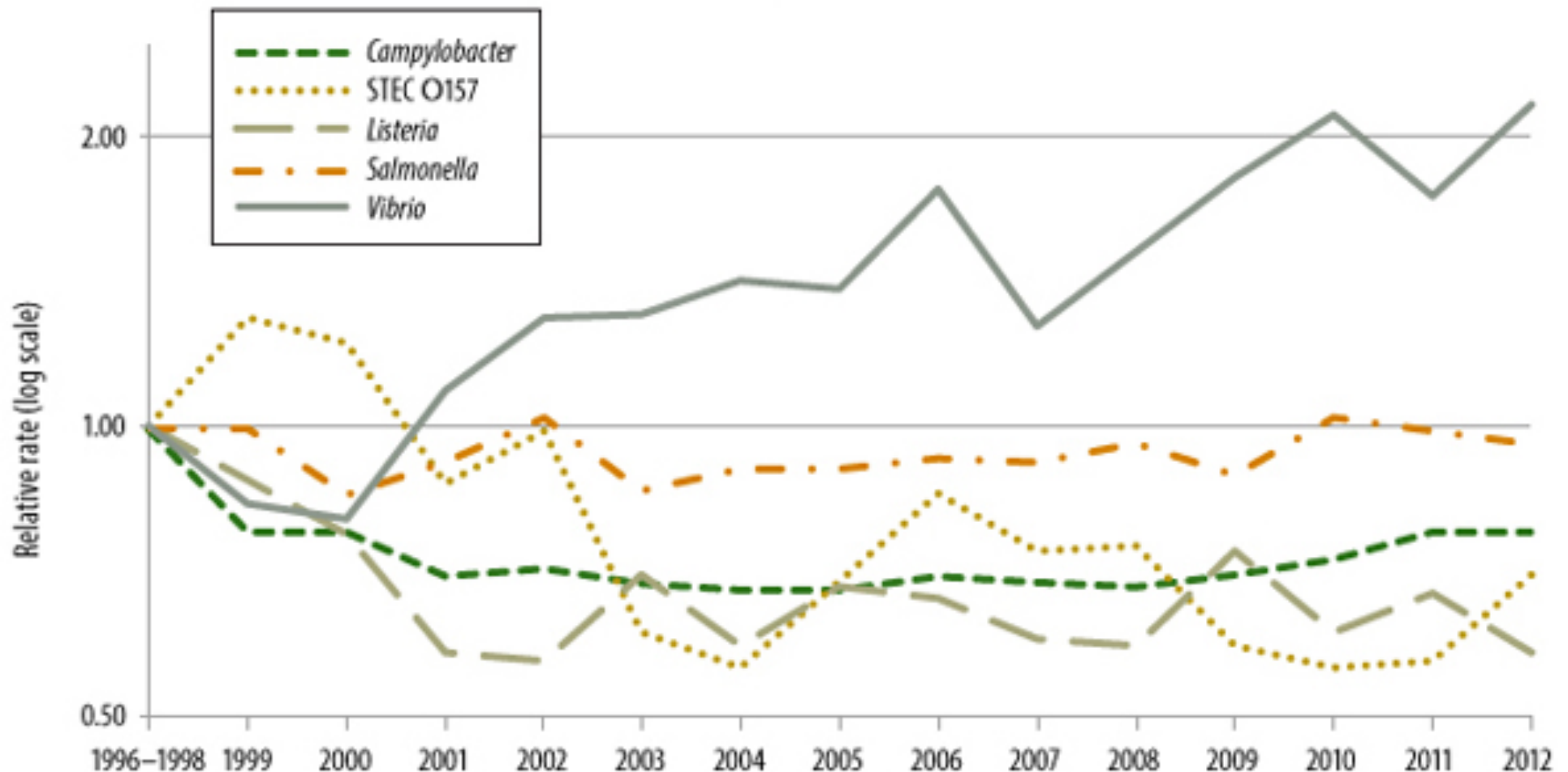
Source: CDC – Trends in Foodborne Illness in the United States, 1996-2012. http://www.cdc.gov/foodnet/PDFs/ncezid-trends-factsheet-508c.pdf

HACCP & Food Safety

- Avoid the mentality below

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HACCP Resources

Go to nichemeatprocessing.org, click on "New to Meat Processing? How to Get Started" and then scroll down to "Microbiology for Meat Processors."

OR

Go here:

www.extension.org/pages/18032/food-safety-haccp

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