**Name:­­­­­­­­­­­­­­­­­­­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Meat Processing**

**History**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (curing)-Oldest known form of meat preservation
  + 3000 B.C.
* Smoking- American Indians
* Sausage
  + Babylonians-1500 B.C.
* Middle Ages-Europe
  + Climate dictated variety
  + Columbus was looking for spices
* Named after towns
  + Bologna, Italy
  + Frankfurt, Germany

**Today**

* Average U.S. citizen per year
  + Spends $188 on cured meats and sausages
* Hot Dog Season (Memorial Day-Labor Day)
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ hot dogs consumed in USA (23 per person)
  + 818 hot dogs per second

**Major categories of meat processing**

* + Fresh Meat
  + Cured & Smoked Meat
  + Sausage

**Fresh Meat Processing**

* Fresh meat-cut and packaged
* Often anaerobic packaging
* Examples:
* Ground Beef
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of U.S. beef consumption
  + Production Steps
    1. Course Grinding
    2. Blending
    3. Fine Grinding
    4. Patty forming
* Raw Material: fatty beef trimmings (less than 5% visible lean)
* Process
  + Heat to cattle body temperature (about 100˚F)
  + Centrifuge to separate fat, protein, and water
  + Add protein and water and then freeze
* Final Product: 95% lean beef
* Used in almost all McDonald’s and Burger King patties

**Enhanced Fresh Meat**

* Inject a solution to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ tenderness and juiciness
  + Enhanced with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Especially helps to retain juiciness if over-cooked

**Cured & Smoked Meat Products**

* Cured with \_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, or with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Examples:
  + Bacon
  + Ham
  + Canadian bacon
  + Corned beef
  + Dried beef
  + Jerky

**Sausage Types**

* Fresh
* Cooked
* Luncheon Meats
* Dry/ Semi- Dry

**Fresh Sausage**

* + Fresh meat – not cured
  + Must be \_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Must be \_\_\_\_\_\_\_\_\_\_\_\_\_ thoroughly before eating
  + Examples:
    - Fresh pork sausage (patty, link, bulk)
    - Italian sausage
    - Bratwurst
    - Chorizo

**Cooked Sausage**

* + Largest volume sausage type in the US
  + Ready-To-Eat
  + Usually \_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_
  + Examples
    - Frankfurters (wieners, hot dogs)
    - Smoked dinner sausages
    - Ring bologna

**Luncheon Meats**

* + Cured and \_\_\_\_\_\_\_\_\_\_\_\_\_
    - May or may not be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Cooked in pans, molds, or casings
  + Usually sliced at plant
  + Examples:
    - Bologna
    - Head Cheese
    - Pimento Loaf

**Dry and Semi Dry Sausage**

* + \_\_\_\_\_\_\_\_\_\_\_\_ sausage
  + Lower pH - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - Preservation
    - Tangy Flavor
  + Examples:
    - Summer Sausage
    - Salami
    - Pepperoni

**Sausage Casings**

* Two types
  + Natural
  + Manufactured
  + Cellulose
  + Poly
  + Collagen
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Commonly used for bratwurst, Italian sausage
  + Intestines, stomachs, and bladders of hogs, sheep, and cattle
  + Advantages –bite (snap) and image
  + Smoke can penetrate
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Most common
* Advantages-price, uniformity, versatility
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Commonly used for skinless hot dogs, dry sausages, and boneless hams
* Inedible- peeled off before eating
* Strong
* Permeable to smoke and moisture
* Used to make skinless products
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Commonly used for bologna, braunschweiger
* Inedible
* Strongest
* Impermeable
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Commonly used for breakfast links
* Edible but uniform
* Lower strength than cellulose
* Palatability depends on thickness

**Sausage and Cured Meat Ingredients**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Trimmings
    - Beef, Pork, Veal
    - 50-95% lean
  + Mechanically Separated Meat
  + Poultry Meat
    - Cheaper
    - Different labeling laws
  + Variety Meats
    - Hearts, tongues, livers
    - Must be on label
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Dispersing agent for other ingredients
  + Compensate for moisture loss during cooking
  + reduces product cost
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Most important curing ingredient
  + Flavor
  + Preservation
    - Lowers water activity
    - Reduces bacterial growth
  + Protein extraction
    - Solubilizes myosin and actin
    - Creates Bind
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Flavor
    - Counteracts the harshness of salt
  + Needed for acid formation in fermented sausage
  + Common sweeteners
    - Dextrose, sucrose, corn syrup solids, brown sugar, honey
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Prevents botulism
  + Limits lipid oxidation
  + Flavor
  + Color-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Also used to treat chest pains and heart problems
  + Average nitrate/nitrite consumption
    - 85% from vegetables
    - 8% from saliva
    - 5% from cured meats
    - 2% from other sources
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Reduce cost
  + Affect texture and flavor
  + Examples
    - Non-fat dry milk
    - Cereal flours
    - Soy protein
  + Must be in product name
    - “Bologna, Soy Protein Added”
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Seasoning –whole or ground aromatic vegetable substances
  + Flavorings –Extracts
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Flavor, aroma, color, preservation
  + Natural smoke or liquid smoke