**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