

# Fermented & Dried Meat Products

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# Classification of Processing Procedures:

- Shelf-stable, Ready to Eat (Dry Sausages)
- Heat-treated, Ready to Eat (Lunchmeats, hot dogs, etc.)
- Heat-treated, Not Ready to Eat (Bacon, cured side meats, country ham)
- Raw Ground (fresh sausages, ground meats and poultry)

- Dried meat and poultry products can be classified as either fermented or non-fermented.
- If they are fermented, generally they are dry and semi-dry sausages.
- Semi-dried meats are simply dried to a different level (15% weight loss during drying, compared to 30% for dried products).
- Non-fermented dried sausages are more commonly, jerky and dried whole muscle meats (such as dried ham), are also shelf-stable.

# Types of Fermented Meat Products

- Dry Sausage
  - Pepperoni, Genoa Salami, Dry Salami, etc.
  - Lower temperature & longer process than for semi-dry
  - Shelf Stable due to water activity
- Semi-dry Sausage
  - Summer Sausage, Lebanon bologna, Cervelat, etc.
  - May require refrigeration





# Fermentation Process for Dry Sausages

- A mixture of curing ingredients, such as salt and sodium nitrite, and a “starter” culture of lactic acid-bacteria, is mixed with chopped and ground meat, placed in casings, fermented and then dried by a carefully controlled, long, continuous air-drying process.
- The amount of acid produced during fermentation and the lack of moisture in the finished product after drying typically have been shown to cause pathogenic bacteria to die.

# Processing of Semi-dry Sausages

- Usually heated in the smokehouse to fully cook the product and partially dry it.
- Are semi-soft sausages with good keeping qualities due to their lactic acid fermentation and sometimes heavy application of smoke.
- Some are mildly seasoned and some are quite spicy and strongly flavored.



# Types of Non-Fermented Meat Products:

- Dried whole muscle meat (Country Ham)
- Jerky
- Dried Sausage



# Process for Dried Meat Products:

- Curing (Climatic or Heat Treated)
- Smoked
- Drying
- Starter cultures not generally used

# To produce a quality safe product it is necessary to:

- prevent the growth of **spoilage** bacteria
- prevent the growth of **dangerous** bacteria (E.coli 0157:H7, Salmonella, Listeria monocytogenes, Trichinella spiralis (trichinae), Staphylococcus aureus (staph))
- create favorable conditions for the growth of **beneficial** bacteria

**To eliminate the risk of bacteria growth and to prevent meat spoilage we employ the following steps, also known as "hurdles":**

- using meats with a low bacteria count
- curing - adding salt and sodium nitrite/nitrate
- lowering pH of the meat
- lowering  $A_w$  (water activity) by drying
- smoking

# pH-Acidity

- Foods with a low pH value (high acidity) develop resistance against microbiological spoilage.
- Bacteria hate acidic foods and this fact plays an important role in the production and stabilization of fermented sausages.

# Aw – Water Activity

- Water activity is an indication of how tightly water is “bound” inside of a product.
- It does not say how much water is there, but how much is available to support the growth of bacteria, yeasts or molds.

# What type of Inspection is Required:

- USDA or State Inspection
- County Health Inspection



# USDA or State Inspection Requirements:

- HACCP Plan
- SSOP
- Sampling for pathogens and Aw (Water Activity)
- Can wholesale products

# How to Pursue USDA or State Inspection:

Contact the NCDA & CS, Meat & Poultry Division at

919-707-3180

# USDA Inspected Facilities That Process Fermented or Dried Meat Products for Farmers

Acre Station Meat Farm  
Richard Huettmann  
17076 NC Highway 32  
Pinetown, NC 27865  
252-927-3700  
Beaufort County

**Process:** Raw Ground, Raw Not Ground, Cooking, Curing (Bacon), Smoking (Country Ham)

Farm Brew  
Sophie Bennewitz  
6810 Caratoke Highway  
Jarvisburg, NC 27947  
252-491-5205 Ext. 3  
Currituck County

**Process:** Cooking, Curing, and Smoking. Examples include but are not limited to: pastrami, roast beef, corned beef, hot dogs, brats, liverwurst, etc.

Lewis Sausage Company  
Don Myers  
1050 Old Savannah Road  
Burgaw, NC 28425  
910-259-2642  
Pender County

**Process:** Raw Ground, Raw Not Ground, Cooking, Smoking (smoked sausage, C-loaf, Souse, Sliced Fatback & Jowls, Pudding, Barbecue, Chitterlings)

# USDA Inspected Facilities That Process Fermented or Dried Meat Products for Farmers

**Mac's Farm Sausage Co.**  
**Scott McLamb**  
**Terry McLamb**  
**209 Raleigh Road**  
**Newton Grove, NC 28366**  
**910-594-0095**  
**910-594-1812**  
**Sampson County**

**Process: Raw Ground (Pork Sausage and Semi-Dry Sausage)**

**San Guiseppe Salami Company**  
**Giacomo Santomauro**  
**2172 Highway 87 North**  
**Elon, NC 27244**  
**336-586-7003**  
**Alamance County**

**Process: Raw Ground, Cooking, Curing, Drying, Smoking (Fresh sausages, Cooked sausages, Deli Meats, Salami)**



Questions?