

# **GDM 412 MEAT TECHNOLOGY**

## **LESSON-11**

### ***PASTIRMA MANUFACTURING TECHNOLOGY***

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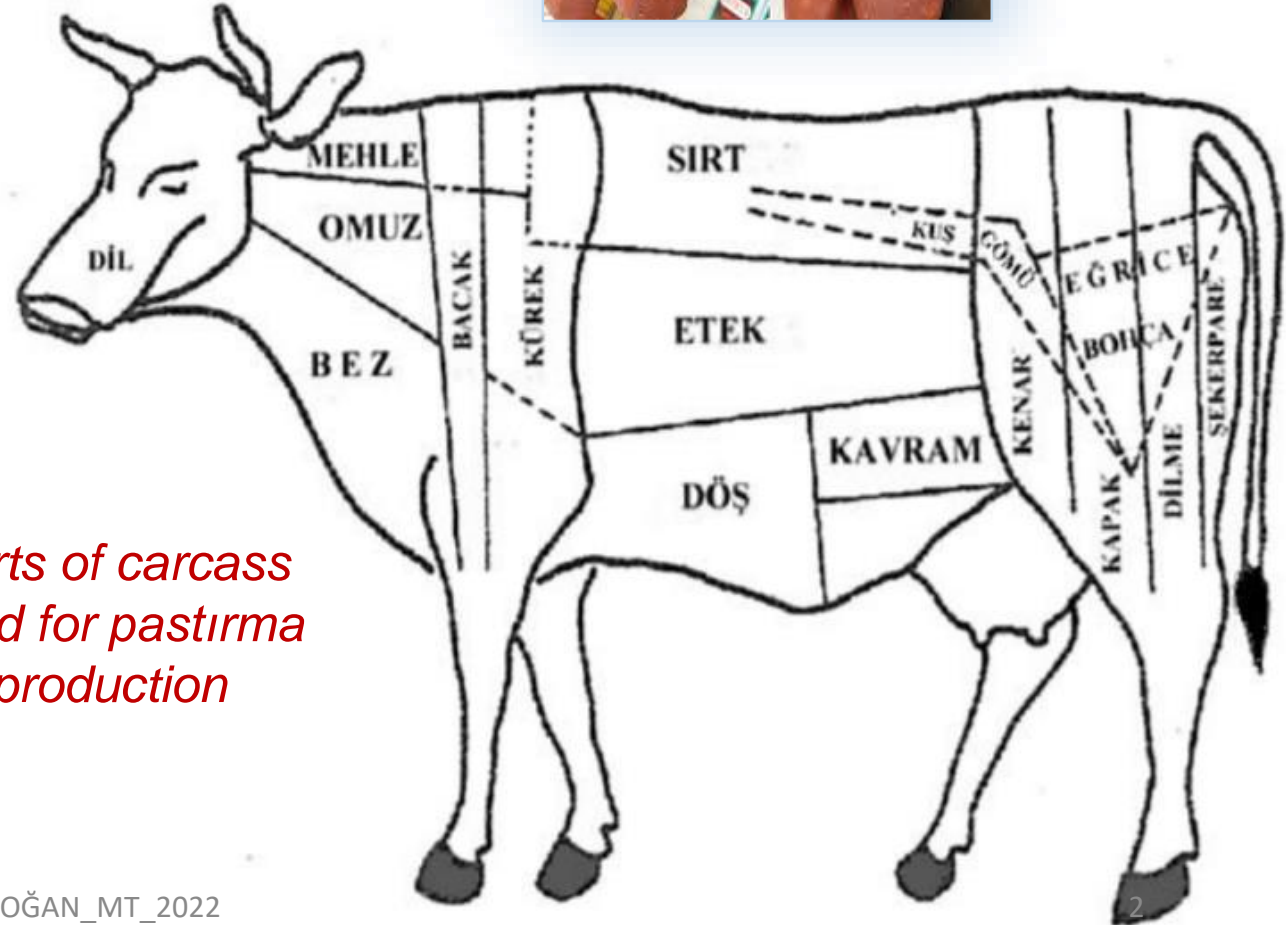
# Pastırma

- One of the most popular types of meat products in Turkey
- A dried cured meat product



## Çemen Paste

Powder fenugreek, paprika,  
crushed garlic + water



# Pastırma

- ✓ “Dry- cured non-heat treated meat product, produced from the muscles properly separated from cattle carcasses by curing and washing followed by pressing and drying, and coating with çemen, further subjecting to drying process again

*(TGK Et, Hazırlanmış Et Karışımları ve Et Ürünleri Tebliği, 2019)*



# Preparation of meats for pastırma production

## *Removal of meat pieces from carcass (Söküm and Açım)*

- ✓ Removal of the bones from the meats and obtaining meats for pastırma production as bloks.



# Preparation of meats for pastırma production

## *Removal of meat pieces from carcass (Söküm and Açım)*

- ✓ Up to 16 different pastırmalar from a cattle carcass
- ✓ “Şaklama”: making deep cuts on the meat surface



*“şaklama” applied meat pieces*

# Curing/salting

- ✓ Salting is performed in wooden or stainless steel containers.
- ✓ Salt should be medium size
  - ✓ Coarse salt: not adequately absorbed by meat and might cause salt burn.
  - ✓ Very fine salt: readily absorbed by meat and might cause quality defects.



# Curing/salting

## *Salting steps*

### 1<sup>st</sup> Salting:

- Manually applying sodium chloride and curing agents (nitrite and other cure components) mixture to meat



# Curing/salting

## 2<sup>nd</sup> Salting:

- 
- Holding time during 2<sup>nd</sup> salting: 6-24 h.
- Salted meat cuts are called “salty” (“tuzlu”).





# Drying (1<sup>st</sup> drying)

- ✓ The moisture content in pastırma (excluding çemen) should be lower than 50%.
- ✓ After the washing step, drying is performed.
- ✓ Drying period depends on the environmental conditions.



# Pressing (1<sup>st</sup> pressing)

- ✓ First pressing (cold pressing) is applied after first drying.
- ✓ A weight of 250 kg
- ✓ The pressure applied is 0.9–1.0 kg/cm<sup>2</sup>
- ✓ The time period of the first pressing: 6-16 h depending on the size of the meat pieces.



# Drying (2<sup>nd</sup> drying)

- ✓ Larger meat pieces are dried for 3 days at 20°C.
  - ✓ Second drying is not applied to small and thin meat pieces.
  - ✓ If needed, a 3<sup>rd</sup> drying is applied.
- ✓ Depending on the characteristics of the meat and environmental conditions;
    - 1st drying lasts for 5-10 days at 7-12°C.
    - 2nd drying lasts for 1-3 at 10-15°C.
    - 3rd drying lasts for 1-4 at 14-18°C.

# Coating with Çemen Paste (Çemenleme)



- ✓ A kind of saucing:
  - ✓ gives a special appearance, color, texture, and flavor to the product
  - ✓ helps inhibit microbial growth and excess drying of the product
- ✓ Definition of “Çemenleme”: “in the production of pastırma, coating external surface of product with the mixture of çemen prepared by mixing fenugreek seed flour, powdered red pepper and garlic mixture with salt and water” (*Hazırlanmış Et Karışımları ve Et Ürünleri Tebliği, 2019*) “
- ✓ Çemen mixture: 50 part flour of *Trigonella foenum-graecum* seed, 35 part smashed fresh garlic and 15 part paprika (medium hot), and prepared with 120 mL water.

# Coating with Çemen Paste (Çemenleme)

- ✓ Meat pieces are kept in çemen paste for 16-36 hr, and then flattened out.
- ✓ Drying of çemen paste applied meat cuts



## Pastirma quality grades

Quality attributes	First grade	Second grade	Third grade
<b>Marbling</b>	Abundant	Little amount of marbling	Does not have a significant amount of marbling.
<b>Intermuscular fat</b>	The least amount of intermuscular fat	Intermediate	The most intermuscular fat
<b>Color</b>	Exterior surface is typical çemen red, cross section bright red, no visible brownish-black crust formation.	Cross section is dark red, visible crust formation.	Cross section is dark red-brownish, visible crust formation.
<b>Texture</b>	Fine structure and texture	Soft	Does not have a fine structure and texture and is very dry.
<b>Tenderness</b>	Tender	Medium tender	Hard
<b>Çemen thickness</b>	Does not exceed 4 mm.	Its çemen is not very homogeneous.	Its çemen is excessive, cracks on the çemen layer.

# Classification of Pastırma

- ✓ First grade pastırmas- kuş gömü ve sırt
- ✓ Second grade pastırmas- bohça (eğrice), kenar, şekerpare, but dilmesi, mehle, omuz, kürek ve kapak
- ✓ Third grade pastırmas- bacak, döş, etek, kavram, bez, meme, kelle ve dil