

# **Lamb & Goat Slaughter/Carcass Grading**

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# **Handling is important in the Quality of the Meat**

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**Per Dr. Temple Grandin:**

**Animals should be handled before slaughter with two main goals**

**Freedom from pain**

**Freedom from fear**

# Humane Methods of Slaughter Act of 1978

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**Two methods have been determined to be humane:**

**1. All animals must be rendered insensible to pain on the first application of the stunning device before being shackled, hoisted, cast, or cut.**

**This means all animals are unconscious and unable to feel pain before they are “stuck” (exsanguinated), shackled, and hoisted into the air, or lowered on a table.**

# Humane Methods of Slaughter Act, cont'd.

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**2. Slaughtering is conducted in accordance with the ritual requirements of any religious faith that prescribes a method of slaughter where the animal suffers loss of consciousness by anemia of the brain caused by simultaneous and instantaneous severance of the carotid arteries with a sharp instrument.**

**Examples: Jewish (Kosher) and Islamic (Halal)**

# Pre-Slaughter

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**Livestock should be fasted for 12-24 hours because:**

**Makes evisceration easier**

**Minimizes migration of bacteria from G.I. tract into meat**

**And should be given free access to water because:**

**Aids in electrical stunning**

**Provides for easier blood removal**

**Provides for easier pelt removal**

**Brightens lean color**

# Mechanical Stunning for Small Ruminants

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## Two-types:

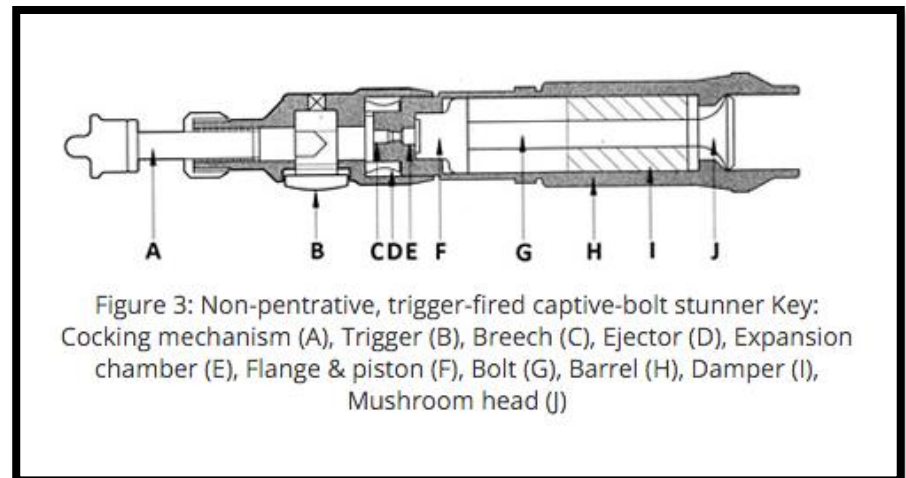
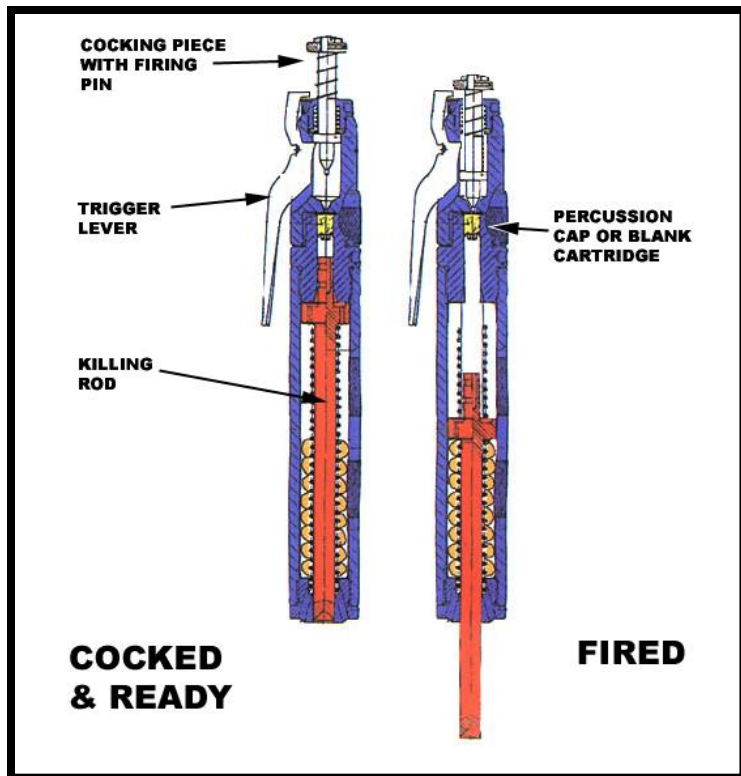
**1. Penetrating – enters the brain causing physical brain damage, changes intracranial pressure, and concussion.**

**Firearms  
Schermer**

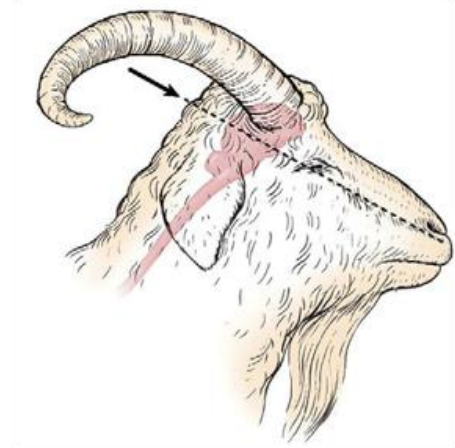
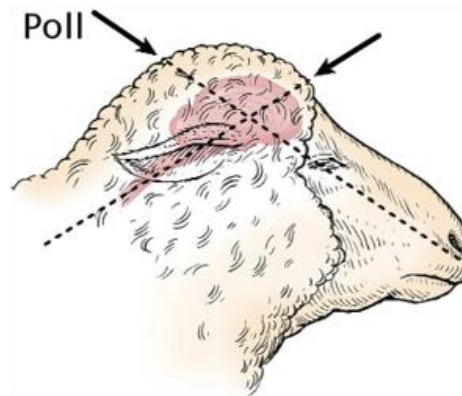
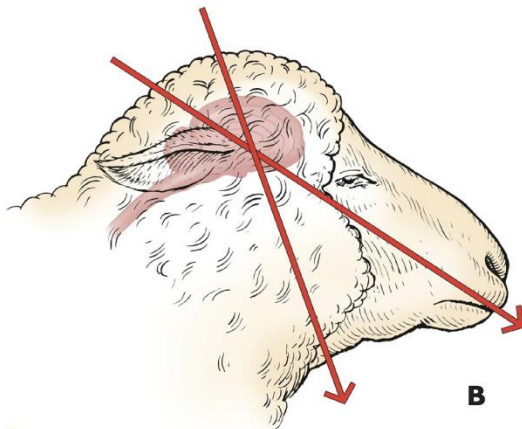
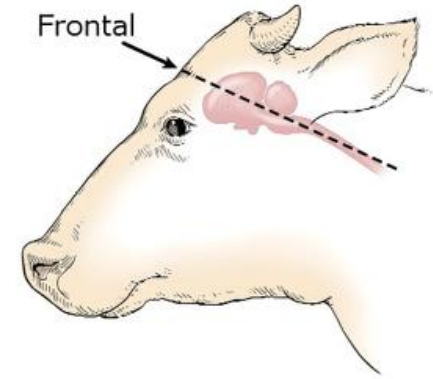
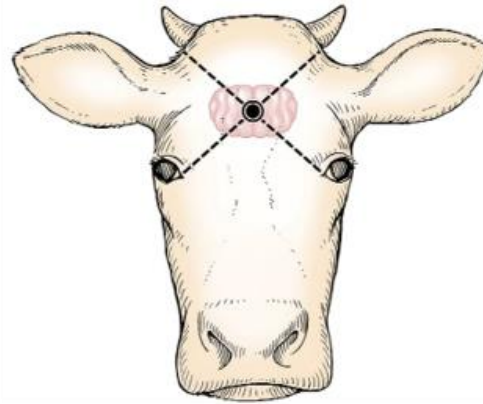
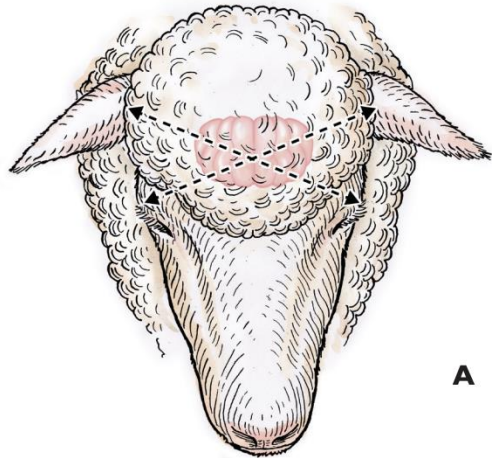
**2. Non-penetrating – (concussion) mushroom head meets the skull without entering, causing concussion and sudden changes in intracranial pressure.**

**Cash knocker**

# Equipment for Stunning



# Mechanical Stunner Placement

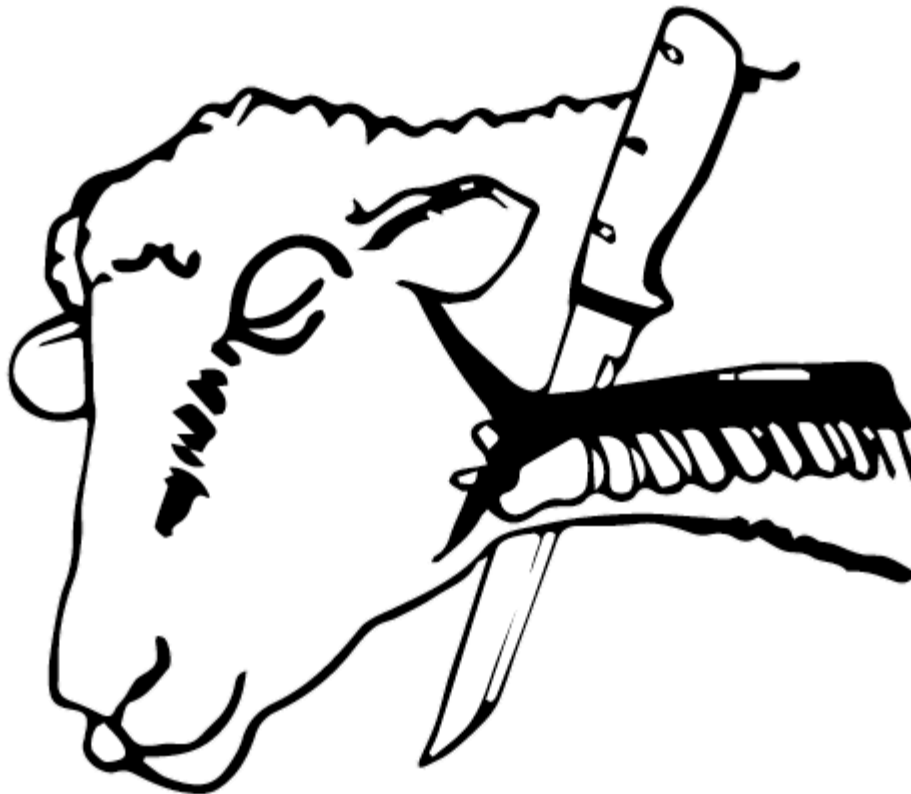




# Exsanguination

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**Effective Bleed out is essential to the color, tenderness, and quality of the meat**



# Questions on Slaughter Protocols?

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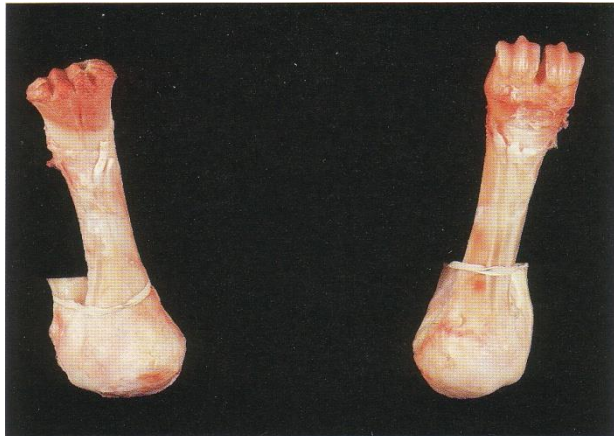
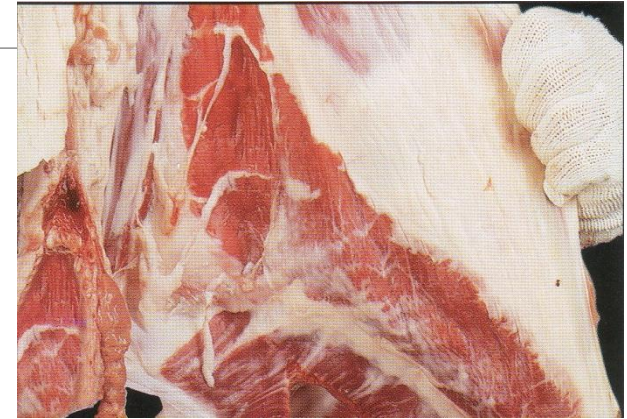
# **Quality Grade vs Yield Grades**

# USDA Quality Grade

- Predicts the eating quality of cooked lamb cuts from the Shoulder, Rack, Loin, and Leg
  - (Prime +,°, -; Choice +,°, -; Good +,°, -; Utility, Cull)
  - 90+% of U.S. lamb carcasses grade Pr or Ch
- Based on:
  - Maturity (lamb, yearling mutton, mutton)
  - Flank streaking (Traces, Slight, Small, Modest, etc.)
  - Conformation (Prime +,°, -; Choice +,°, -; Good +,°, -)
  - Flank and fat firmness
  - Minimum fat thickness

# Maturity

A Maturity  
(Round & Red Ribs/Pink Flank)

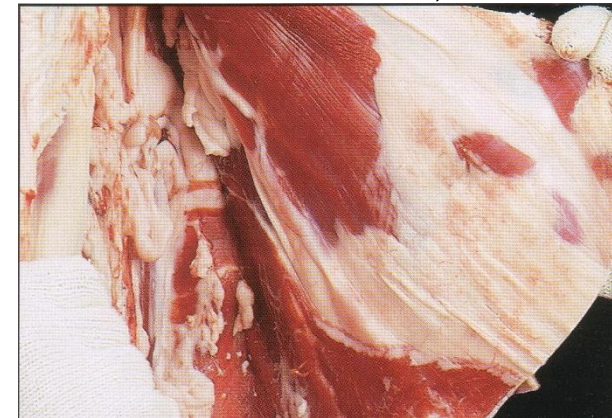
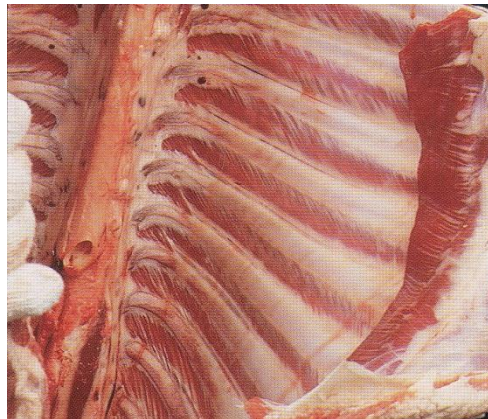


"Break Joint"

"Spool Joint"

Young vs Old

B Maturity  
(Flatter & Reddish/ Red Flank)



Ribs

Flank Color

# Maturity Descriptions

Maturity	Approx. Age (mo.)	No. Break Joints	Rib Bones	Lean Color	Lean Texture
Lamb (A) Young	3-8	2	Md. Nar. Slt. Flat	Slightly Pink	Fine
Lamb (B) Older	10-14	1 or 2	Slt. Wide Md. Flat	Light Red	Fine
Yearling Mutton	14-24	0, 1 or 2	Md. Wide Tends to be Flat	Slightly Dark Red	Slightly Course
Mutton	>24	0	White, wide, flat	Dark Red	Course

# Flank Streaking

is used to determine marbling in the Ribeye of the lamb

## Flank Streaking Classes



Traces



Slight



Small



Modest



Moderate

## Carcass Conformation



Pr°

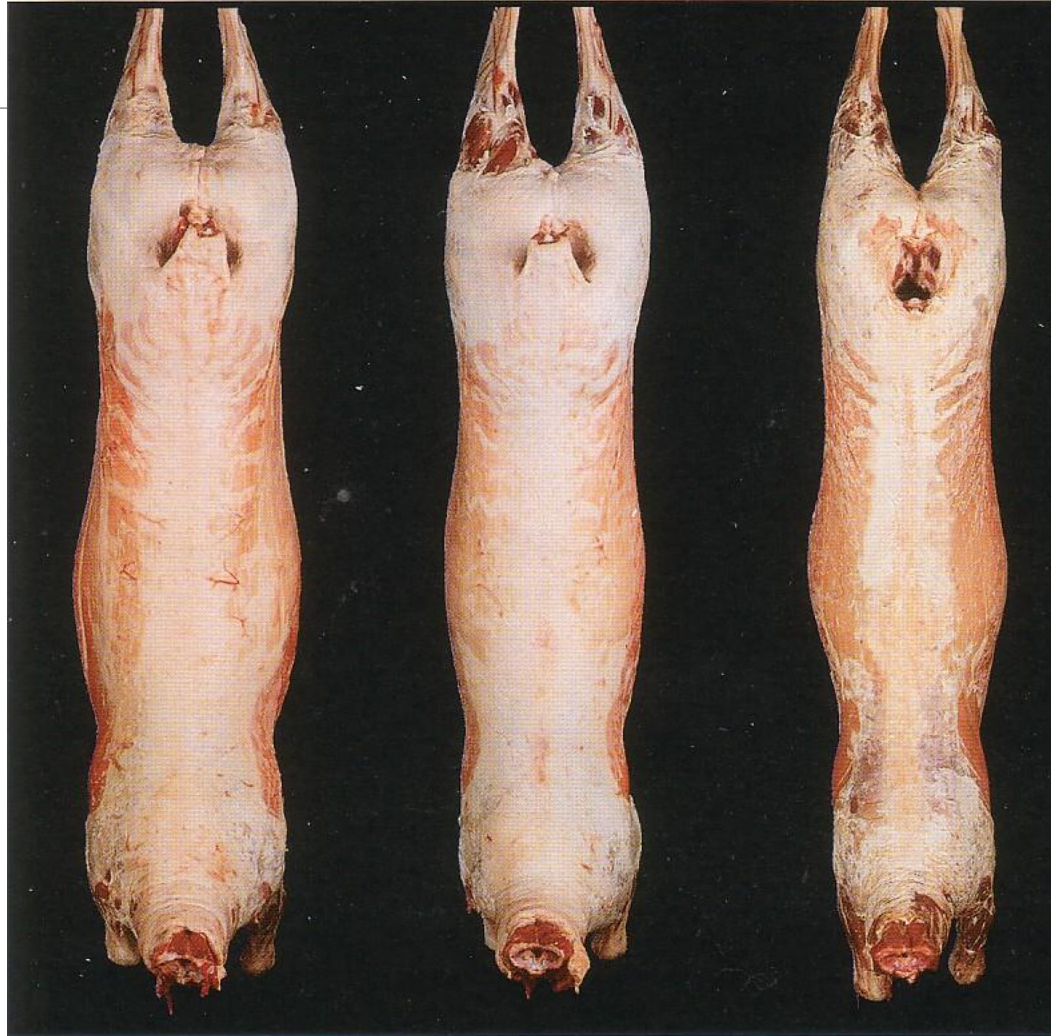
Pr-

Ch°

Ch-

Gd+

# Conformation



Prime ◦

Prime- ◦

Choice ◦



# Minimum Fat Covering



Not Eligible for  
Prime and Choice



Eligible for  
Prime and Choice

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**Goat meat is known for being very lean, containing little marbling and minimal subcutaneous fat. There are no official USDA yield or quality grades for goat meat.**

# Goat Quality Grades USDA

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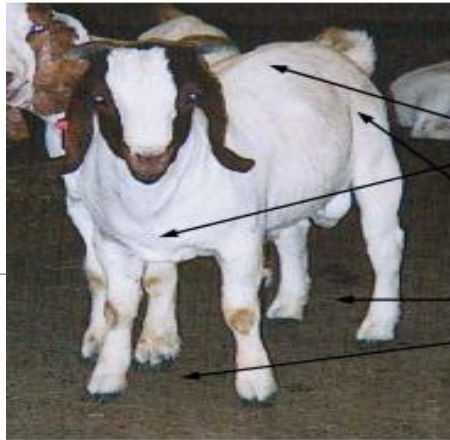
**Despite the lack of official USDA grades, there are three general quality grading standards for goats based primarily on muscling and lack of subcutaneous fat:**

**SELECTION 1: Heavily Muscled**

**SELECTION 2: Moderately Muscled**

**SELECTION 3: Poorly Muscled**

# Goat Grade Examples



## Selection No. 1

- Wide chest
- Wide, flat top
- Heavily muscled rear leg
- Wide base

## Selection No. 2

- Moderately muscled rear leg
- Moderately wide, flat top
- Adequate width of chest
- Moderately wide base



## Selection No. 3

- Narrow chest
- Narrow, sharp top
- Little rear leg muscling
- Narrow base

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# USDA Yield Grade

Purpose to segregate carcasses into cutability groups based on the expected yield of closely-trimmed cuts from the **leg, loin, rack, and shoulder** (80% of the weight and 90% of the value)

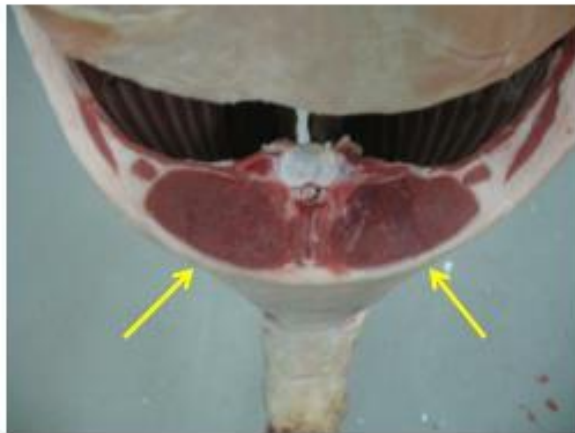
## Expected Yields

- YG 1 – 49.8% or more
- YG 2 – 49.7% - 48.6%
- YG 3 – 48.4% - 47.3%
- YG 4 – 47.1% - 46.0%
- YG 5 – 45.8% or less

# USDA Yield Grade

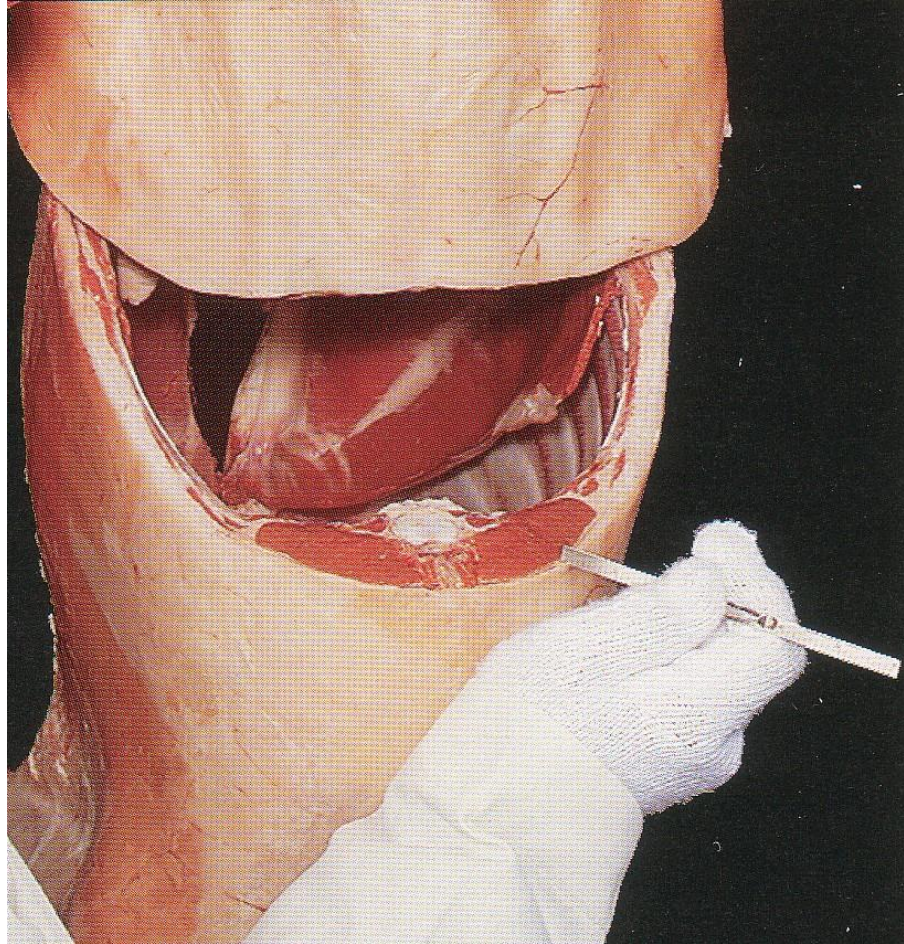
USDA Yield Grades – 1, 2, 3, 4, 5  
- Avg yield grade of US lamb carcasses is upper 3

$$\text{USDA YG} = (10 \times 12^{\text{th}} \text{ rib fat}) + 0.4$$



# Yield Grade

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# Criteria for Placing Lamb Carcasses

1. Trimness / Fatness
2. Muscling
3. Dimension / Weight

Minimum Quality – Prime and Choice



# Yield Grade 1.5

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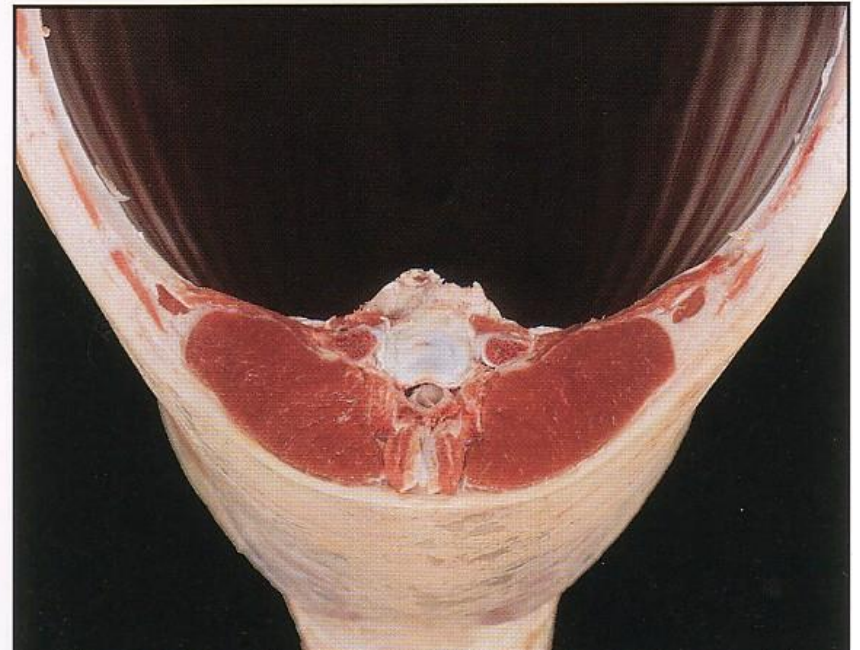
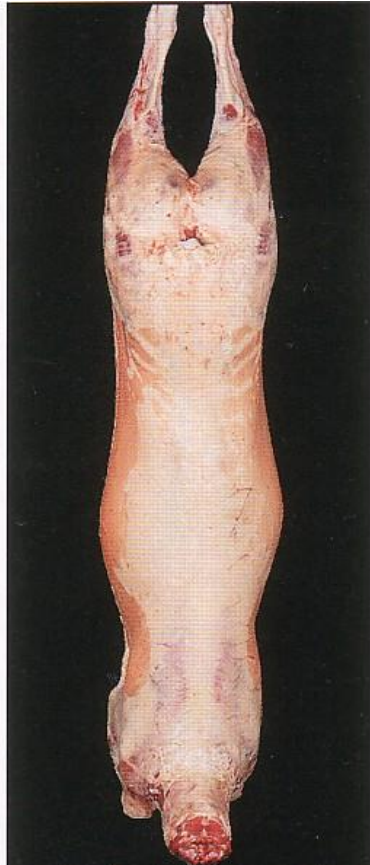
## Yield Grade 1

Hot Carcass Weight = 55 lb.

Fat Thickness = 0.09 in.

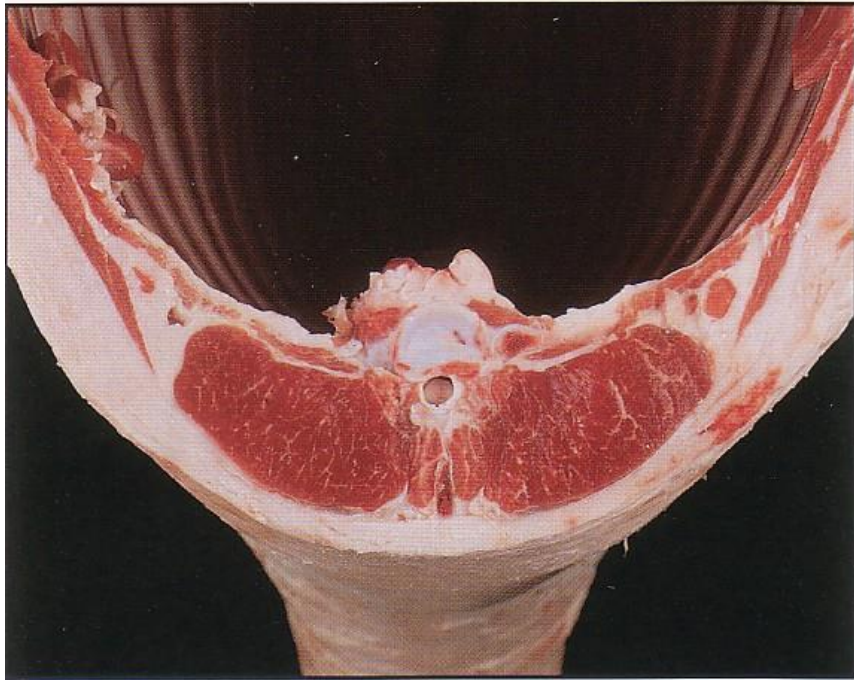
Adjusted Fat Thickness = 0.11 in.

Yield Grade = 1.5



# Yield Grade 3.4

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## Yield Grade 3

Hot Carcass Weight = 67 lb.

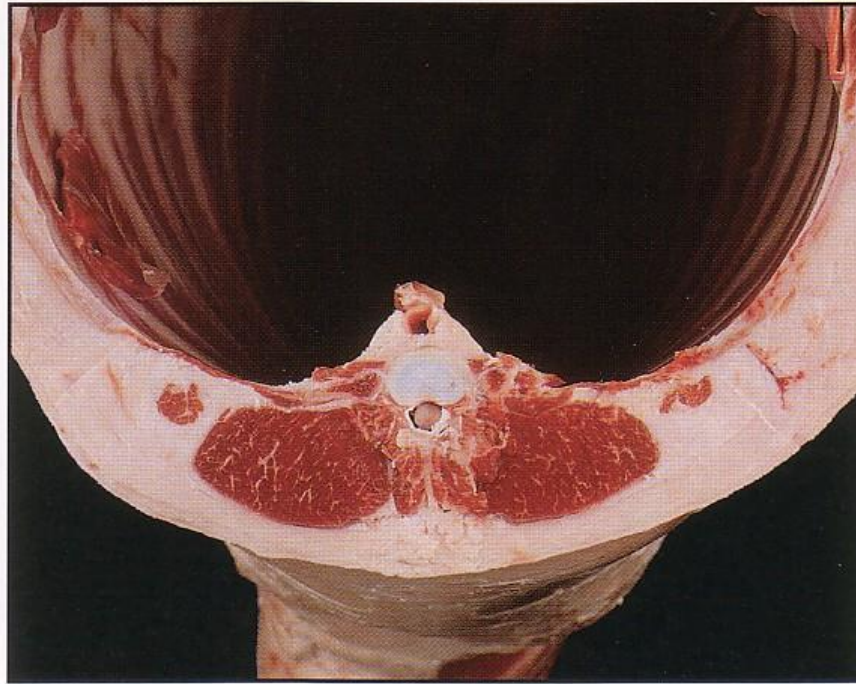
Fat Thickness = 0.27 in.

Adjusted Fat Thickness = 0.30 in.

Yield Grade = 3.4

# Yield Grade 5.4

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## Yield Grade 5

Hot Carcass Weight = 84 lb.  
Fat Thickness = 0.44 in.  
Adjusted Fat Thickness = 0.50 in.  
Yield Grade = 5.4

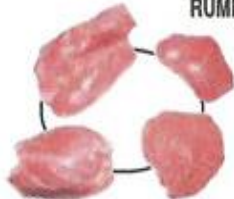
SILVERSIDE 5071

RUMP 5074

LEG CUTS 5065

LEG - CHUMP ON  
4800

LEG - CHUMP ON/AITCH  
BONE REMOVED 4801



KNUCKLE  
5072

TOPSIDE 5073

SHORT LOIN  
4880

LOIN 4860

LEG CHUMP OFF -  
SHANK OFF 4830

LEG CHUMP ON -  
SHANK OFF 4810

RACK (FRENCHED) 4938  
(CAP OFF)

RACK 4932

LEG CHUMP ON -  
SHANK OFF 5061

LEG FEMUR  
BONE 4802



TENDERLOIN  
5080

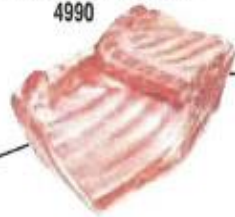


SQUARE CUT SHOULDER  
4990

BACKSTRAP  
5109

LEG CHUMP ON -  
SHANK OFF 5061

SHOULDER - SQUARE CUT  
ROLLED/NETTED 5050



NECK 5020

FORE SHANK  
5030

BREAST AND FLAP  
5010

