USDA Meat Goat Grades and Carcass Fabrication

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Influences on lean meat yield

- Conformation - relative shape of body comparing size, mass, and shape of muscles compared with size, mass, and shape of body
- Relative proportion of muscle to fat/bone
- Relative body size (weight or circumference of heart girth, barrel, or limbs)
# Selection Classes

<table>
<thead>
<tr>
<th>Selection</th>
<th>$1^{99}$</th>
<th>highest conformation</th>
<th>$1^{50}$</th>
<th>middle conformation</th>
<th>$1^{00}$</th>
<th>lowest conformation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selection 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Selection 2</td>
<td>$2^{99}$</td>
<td>highest conformation</td>
<td>$2^{50}$</td>
<td>middle conformation</td>
<td>$2^{00}$</td>
<td>lowest conformation</td>
</tr>
<tr>
<td>Selection 3</td>
<td>$3^{99}$</td>
<td>highest conformation</td>
<td>$3^{50}$</td>
<td>middle conformation</td>
<td>$3^{00}$</td>
<td>lowest conformation</td>
</tr>
</tbody>
</table>
Superior meat-type conformation
Thickly muscled as indicated by
• Pronounced (bulging) outside leg (*B. femoris* and *Semitendinosus*)
• Full (rounded) back strip (rib and loin, *L. dorsi*)
• Moderately thick outside shoulder (*T. brachii* group)
Average meat-type conformation
Moderately muscled as indicated by

- Slightly thick and slightly pronounced outside leg \((B.\ femoris\ \text{and}\ \textit{Semitendinosus})\)
- Slightly full (flat or slightly shallow) back strip (rib and loin, \(L.\ dorsi\))
- Slightly thick to slightly thin outside shoulder \((T.\ brachii\ \text{group})\)
Inferior meat-type conformation
Moderately muscled as indicated by
● Narrow legs, back, shoulders in relation to body length
● Very angular and shrunken appearance
● Deficient muscling in leg, back strip (rib and loin, *L. dorsi*), shoulder
Selection 1^{50}
Selection $2^{50}$
Selection 3^{70}
Comparisons
Goat carcass selection classification
Side carcass views

150  250  350
Side carcass views

1\textsuperscript{50}  2\textsuperscript{50}  3\textsuperscript{50}
Other carcass evaluation criteria

- Flank lean color – consumers desire light pink meat color
- Kidney, heart, and pelvic fat - fat is left in carcass to prevent drying, but is waste fat
- Subcutaneous fat cover score –
  - external fat deposited behind shoulder and over ribs, not over back or legs
  - depth is not uniformly distributed for measurement
Lean flank color
Kidney, heart and pelvic fat, %
Subcutaneous fat cover score
Goat carcass fabrication and cuts

- Foodservice and many retail companies want standardization of primal and retail cuts, usually portion controlled.
- Institutional Meat Purchase Specifications (IMPS) provide for portion control and uniform cutting/fabrication.
- IMPS for fresh goat (IMPS series 11) were developed for goat meat based upon carcass sizes, resulting in 5 different cutting styles.
INSTITUTIONAL MEAT PURCHASE SPECIFICATIONS

FOR FRESH GOAT SERIES 11

INTERIM

APPROVED BY USDA

EFFECTIVE DATE – OCTOBER 2001
Fresh Goat IMPS Purchaser Specified Options

- **Style** (platter, roasting, barbeque, food service, hotel)
- **Cut identification** (primal cut or location on carcass)
- **Boneless or bone-in, tail length, special cutting instructions**
- **Added ingredients such as enhancement solutions** (marinades; salt/water/phosphates)
- **Conformation selection** (1, 2, 3)
- **Class** (buck, doe, wether)
- **Maturity** (kid, yearling, goat)
Fresh Goat IMPS Purchaser Specified Options

- Breed type, forage type, organic certification
- Slaughter (Halal, Kosher, other)
- Refrigeration (fresh/refrigerated or frozen)
- Weight or thickness of portion cut
- Fat trim level on cut
- Netting/tying
- Packaging and packing requirements
- Quality assurance requirements
# Fabrication guide to IMPS cuts

<table>
<thead>
<tr>
<th>IMPS Style</th>
<th>Carcass Weight Range</th>
<th>Recommended Skeletal Cuts</th>
<th>Recommended Muscular Cuts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Platter</td>
<td>15 lb. or less</td>
<td><img src="image1" alt="Skeletal cuts" /></td>
<td><img src="image2" alt="Muscular cuts" /></td>
</tr>
<tr>
<td>Roasting</td>
<td>15-30 lb.</td>
<td><img src="image3" alt="Skeletal cuts" /></td>
<td><img src="image4" alt="Muscular cuts" /></td>
</tr>
<tr>
<td>Barbeque</td>
<td>20-40 lb.</td>
<td><img src="image5" alt="Skeletal cuts" /></td>
<td><img src="image6" alt="Muscular cuts" /></td>
</tr>
<tr>
<td>Food Service</td>
<td>30-40 lb.</td>
<td><img src="image7" alt="Skeletal cuts" /></td>
<td><img src="image8" alt="Muscular cuts" /></td>
</tr>
<tr>
<td>Hotel</td>
<td>40 lb. or more</td>
<td><img src="image9" alt="Skeletal cuts" /></td>
<td><img src="image10" alt="Muscular cuts" /></td>
</tr>
</tbody>
</table>
## Average Weights and Weight Ranges of IMPS Cuts with Different Goat Carcass Styles

<table>
<thead>
<tr>
<th>Style</th>
<th>Platter</th>
<th>Roasting</th>
<th>Barbeque</th>
<th>Food Service</th>
<th>Hotel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carcass weight lb.</td>
<td>15 or less</td>
<td>15 to 30</td>
<td>20 to 40</td>
<td>30 to 40</td>
<td>40 and above</td>
</tr>
<tr>
<td>Cut name</td>
<td>Average weight</td>
<td>Weight range</td>
<td>Average weight</td>
<td>Weight range</td>
<td>Average weight</td>
</tr>
<tr>
<td>Leg</td>
<td>3</td>
<td>2-4</td>
<td>7.5</td>
<td>3.3-10</td>
<td>8.2</td>
</tr>
<tr>
<td>Hind Shank</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loin</td>
<td>4</td>
<td>3-6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Back</td>
<td></td>
<td></td>
<td>2</td>
<td>1.2-5</td>
<td>5.8</td>
</tr>
<tr>
<td>Rack (rib)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ribs</td>
<td></td>
<td></td>
<td>7.5</td>
<td>4.7-12.6</td>
<td>3.7</td>
</tr>
<tr>
<td>Shoulder</td>
<td>9.6</td>
<td>7-11.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outside shoulder</td>
<td>3.8</td>
<td>0.9-6.6</td>
<td>6.3</td>
<td>1.1-7.7</td>
<td></td>
</tr>
<tr>
<td>Square shoulder</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fore Shank</td>
<td>1</td>
<td>0.5-1.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neck</td>
<td>0.8</td>
<td>0.5-1.4</td>
<td>1.2</td>
<td>0.8-1.9</td>
<td>1.5</td>
</tr>
</tbody>
</table>
Boxed goat

- Standardized goat cuts can fit and be shipped in boxes similarly to cuts of other species
Dressing percentages, shrinkage and yield

- Dressing percentages range from 42 to 52%, but average 45 to 48% for most goats held from feed overnight before slaughter.
- Cooler shrinkage during the first 24 hours is 3 to 10%, with variation due to cooler temperature, air velocity, size of carcass, and source of carcasses.
- Primal cuts are 75 to 98% of cold carcass weight, with fatter carcasses or poorly dressed carcasses yielding lower primal cut percentages.
Dressing percentages, shrinkage and yield

- Cuts can be boneless or individual muscles, depending upon preference or IMPS specification
- Lean yield is from 50 to 70% of cold carcass weight, dependent upon size, fat, bone contents
- Kidney, pelvic and heart fat and trotters are traditionally left on carcasses
  - KPH fat varies from 1 to 8% of carcass weight
  - Trotter weight varies from 1 to 2.5% of carcass weight
Boneless goat cuts can be made by cutting along seams
Goat muscle location

- Semimembranosus
- Gluteus medius
- Semitendinosus
- Biceps femoris
- Quadriceps
- L dorsi
- Psoas major
- Infraspinatus
- Supraspinatus
- Biceps brachii
- Triceps
Major goat muscles