Carcass evaluation is an important part of determining the success of lamb production. The ultimate goal of a market lamb project is to produce a wholesome, high-quality carcass that is trim and has a high degree of cutability.

**Quality Grade**

Quality grades are used to predict palatability characteristics such as: tenderness, juiciness, and flavor. The quality grade of a lamb carcass is based on conformation, maturity, flank streaking, firmness of the lean and fat, and amount of external fat.

Conformation is the degree of total muscling in the carcass in relationship to the skeletal frame size and degree of finish, especially in the leg, rack, loin, and shoulder. Maturity is the age of the animal. The lamb should be under 12 months of age, or the meat is classified as mutton. Flank streaking is the amount of fat on the surface of the flank muscle. (See Table 6.) Firmness of lean and fat is measured at the flank and is an indicator of carcass fatness. The lamb also must have a minimum amount of external fat covering the carcass to protect it from shrinking and drying out in the meat cooler.

The USDA quality grades for lambs and yearling carcasses are:
- Prime
- Choice
- Good
- Utility
- 98% of all quality graded lamb carcasses are Prime, Choice, or Good.

The quality grades for slaughter (mutton) carcasses are:
- Choice
- Good
- Utility
- Cull

**Yield Grade**

Yield grade refers to the expected yield of boneless, closely trimmed retail cuts. The five yield grades are numbered 1 through 5. Yield grade 1 is more desirable because it represents the highest yield of meat from the retail cuts, while yield grade 5 represents the lowest yield.

The amount of external fat plays the primary role in determining yield grade. The amount of fat is measured at the 12th rib above the loin eye muscle (Figure 58). As the amount of external fat increases, the percent of retail cuts decreases, with yield grade moving closer to 5.

*Figure 58*

*Side view of a lamb which shows the location of the 12th rib site for backfat and loin eye area estimation.*

If the carcasses are not ribbed, the muscle size can be estimated by evaluating the muscling in the leg and the width and fullness over the rack and loin.
The amount of external fat at the 12th-13th rib determines yield grade. To find yield grade use the following equation: \( \text{YG} = 0.4 + (10 \times \text{adjusted fat thickness over the loin eye}) \). Using this equation, the fat thickness range for each yield grade is as follows:

<table>
<thead>
<tr>
<th>Yield Grade</th>
<th>Fat Thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.00–0.15 inches</td>
</tr>
<tr>
<td>2</td>
<td>0.16–0.25 inches</td>
</tr>
<tr>
<td>3</td>
<td>0.26–0.35 inches</td>
</tr>
<tr>
<td>4</td>
<td>0.36–0.45 inches</td>
</tr>
<tr>
<td>5</td>
<td>0.46 inches and greater</td>
</tr>
</tbody>
</table>

**Dressing Percent**

Dressing percent = \( \frac{\text{chilled carcass weight}}{\text{live weight}} \) x 100

The average dressing percent for lambs is 52 percent. (Four of the most common things that affect dressing percent are amount of fill, pelt, muscle and fat.)

Dressing percentage refers to the relationship between carcass weight and live animal weight. Factors which influence dressing percentage are:

- Heavy-muscled lambs generally dress higher.
- Fatter lambs dress higher.
- An increase in fill (feed in the digestive system) will lower the dressing percentage.
- As pelt weight increases, dressing percent decreases.
- A lot of mud and manure decreases dressing percent.
- Shorn lambs will have a higher dressing percent.

**Finish**

Finish refers to the thickness and distribution of external fat. In the ribbed carcass, the degree of finish can be determined by observing the fat thickness directly over the top of the two loin eye muscles at the center of the longissimus muscle. This usually is an indication of the total fatness of the carcass. The ideal finish on a lamb is 0.10 to 0.20 inches of fat.

![Figure 59](image)

*The arrow on the left indicates where fat thickness is measured over the top, along the midpoint of the longissimus (loin) muscle.*

**Loin Eye Area**

Direct measurement of the size of the loin eye muscle is possible if the carcasses are ribbed, cut so the loin eye muscle is visible (between the 12th and 13th rib). Then the loin eye area can be used as an indicator of muscling. The loin eye area can be measured using a plastic grid which has 20 dots or squares for each square inch. Place the grid on the cut surface of the loin eye and count all of the dots which touch the lean of the longissimus muscle, being sure not to include the small muscles which surround the longissimus. (See Figure 60.) Divide the number of dots by 20 and
the result is loin eye area in square inches. The loin eye area should be recorded to the nearest 0.1 square inch. The normal range of the size of the loin eye is 2.0–3.0 square inches.

Goals for Lamb Production

1. 90 pounds live weight in 120 days or less.
2. 54 percent dressing for shorn lambs.
3. 50 percent of carcass in hindsaddle.
4. 2.5 square inches of ribeye area per 50 pounds of carcass.
5. 0.10–0.20 inch fat over center of the ribeye.
6. Choice quality grade or better.
7. Yield grade equals 1 or 2.

Figure 60
Picture of loin eye with grid over it. Actual size of this loin eye is 3.0 square inches.

Table 6

<table>
<thead>
<tr>
<th>Degrees of Flank streakings</th>
<th>Abundant</th>
<th>Moderately Abundant</th>
<th>Slightly Abundant</th>
<th>Moderate</th>
<th>Modest</th>
<th>Slight</th>
<th>Traces</th>
<th>Practically Devoid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Young lamb</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Older Lamb</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yearling Mutton</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mutton</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6

Chapter 6 • Carcass Evaluation and Meats 75
Guide for Estimating Fat Thickness and Loin Eye Area

Table 7
Guides for Estimates

Chapter 6 • Carcass Evaluation and Meats
Callipyge Gene

In recent years, a new heavy muscling trait has been identified in sheep. Many sheep producers have been referring to the trait as “double muscling.” Meat scientists say this trait is not like the double muscling that is found in cattle and hogs but is extreme heavy muscling or muscle hypertrophy. Observations have suggested the muscle hypertrophy is of genetic origin and is capable of being passed from parent to offspring. Researchers have named the gene “callipyge” meaning “nicely proportioned buttocks.” Lambs with the callipyge gene have much more muscle and less fat but also have tougher meat. Therefore, this gene is undesirable because tough meat is not wanted by the consumer.

Wholesale/Retail Cuts of Lamb

### Wholesale Cuts of Lamb

<table>
<thead>
<tr>
<th>Cut</th>
<th>Percent of Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shoulder</td>
<td>25</td>
</tr>
<tr>
<td>Rack (rib)</td>
<td>11</td>
</tr>
<tr>
<td>Breast</td>
<td>10</td>
</tr>
<tr>
<td>Foreshank</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>50</strong></td>
</tr>
</tbody>
</table>

| 5. Leg       | 33                |
| 6. Loin      | 17                |
| **Total**    | **50**            |

The hindsaddle comprises 50 percent of the carcass weight, but approximately 65 percent of the carcass value.

Table 8
Percent of Boneless, Trimmed, Retail Cuts from Each Yield Grade

<table>
<thead>
<tr>
<th>Yield Grade</th>
<th>% Boneless, Trimmed Cuts from Leg, Loin, Rack and Shoulder</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>&gt; 47.3</td>
</tr>
<tr>
<td>2</td>
<td>45.4 to 47.2</td>
</tr>
<tr>
<td>3</td>
<td>43.7 to 45.3</td>
</tr>
<tr>
<td>4</td>
<td>41.9 to 43.6</td>
</tr>
<tr>
<td>5</td>
<td>&lt; 41.9</td>
</tr>
</tbody>
</table>

Table 9

Specifics

Due to the diversity of the sheep industry, a wide range of specific requirements are acceptable depending upon the local lamb market for which a sheep producer is producing lamb.

Weight of Live Lamb
Range—90 pounds and higher
Ideal—115–140 pounds**

Dressing Percent
Range—46–58 percent
Average—52 percent

Carcass Weight
Range—45–85 pounds
Ideal—55–75 pounds

Fat Thickness
Range—0.10–0.50 inches
Ideal—0.10–0.20 inches
Average—0.20 inches

Rib Eye Area (REA)
Range—2.0 inches² and higher
Ideal—2.5 inches² and higher
(For 50 pound carcass weight)

Yield Grade
Average 2–3
(range 1–5, lower is more desirable)

Fat thickness at the 12th rib is the one and only factor used to determine yield grade.

** Ideal live weight range should have factors such as frame size and finish of the live animal taken into consideration.

Lamb Production and Consumption

U.S. consumption of lamb is 1.0 pounds per person per year on a carcass weight basis. Most lamb in the United States is consumed in the Northeast and in the western coastal states. New York and California are the top two states in lamb consumption.

Top U.S. states in sheep and lamb production:

1. Texas
2. California
3. Wyoming
4. Colorado
5. South Dakota

Ohio ranks 15th — largest sheep producing state east of the Mississippi River. Ohio also ranks 3rd in the number of sheep farms.


Top sheep-producing countries:

1. Mongolia
2. Australia
3. China
4. New Zealand
5. Russia

U.S. ranks 26th in sheep production


Table 10
Kinds of Lamb and Mutton

<table>
<thead>
<tr>
<th>Live Terminology</th>
<th>Carcass Terminology</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.) Hot House</td>
<td>Hot House Lamb</td>
<td>35–42 pounds live weight, very young, produced out of season, special slaughtering, not graded</td>
</tr>
<tr>
<td>2.) Easter</td>
<td>Easter Lamb</td>
<td>A modified hot house, live weight up to 60–70 pounds, normal slaughter procedure, not graded</td>
</tr>
<tr>
<td>3.) Spring or New Crop</td>
<td>Genuine Spring Lamb</td>
<td>Born in winter or early spring and marketed by July 1; normal weights and grades</td>
</tr>
<tr>
<td>4.) Lambs</td>
<td>Spring Lamb</td>
<td>Used from July 1 to first Monday in October; normal weights and grades</td>
</tr>
<tr>
<td>5.) Old Crop or Fed</td>
<td>Lamb</td>
<td>Used from first Monday in October and as long as break joint appears and evidence of youthfulness is present</td>
</tr>
<tr>
<td>6.) Yearlings</td>
<td>Yearling Mutton</td>
<td>May have either spool or break joint; evidence of maturity is present in bone and color of muscle</td>
</tr>
<tr>
<td>7.) Sheep</td>
<td>Mutton</td>
<td>Breeding stock sold for slaughter as they are no longer useful for reproduction</td>
</tr>
</tbody>
</table>

Table 11

Kinds of pelts:

1. Unshorn (also wooled or full-fleece)
2. Summer shorn ........................................... 1—1½ inch fleece
3. #1 ..................................................... ½—1 inch fleece
4. #2 ..................................................... ¼—½ inch fleece
5. #3 ..................................................... less than ¼ inch fleece
6. #4 (also fresh-shorn)

All lambs referred to as “clips” or clipped lambs.

Table 12

Chapter 6 • Carcass Evaluation and Meats
# LAMB CUTS: and how to cook them.

<table>
<thead>
<tr>
<th>SHANK</th>
<th>BREAST</th>
<th>SHOULDER</th>
<th>RACK</th>
<th>LOIN</th>
<th>SIRLOIN</th>
<th>LEG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shank (Braise, Simmer in liquid)</td>
<td>Sparerib (Braise)</td>
<td>Square Cut Shoulder (Roast)</td>
<td>Rack Roast (Roast)</td>
<td>Loin Chop (Broil, Pan Broil, Pan Fry)</td>
<td>Sirloin Roast (Roast)</td>
<td>Whole Leg (Roast)</td>
</tr>
<tr>
<td>Stew Meat (Simmer in liquid)</td>
<td>Rolled Breast (Braise, Roast)</td>
<td>Arm Chop (Broil, Pan Broil, Pan Fry)</td>
<td>Loin Roast (Roast)</td>
<td>Sirloin Steak (Broil, Pan Broil, Pan Fry)</td>
<td>Round Leg Steak (Braise, Broil)</td>
<td></td>
</tr>
<tr>
<td>Ribs (Braise, Simmer in liquid)</td>
<td>Pre-sliced Shoulder (Braise, Roast)</td>
<td>French Rib Chops (Broil, Pan Broil, Pan Fry)</td>
<td>Double Loin Chop (Broil, Pan Broil, Pan Fry)</td>
<td>Sirloin Shank Half (Roast)</td>
<td>Boneless Leg (Over Roast, Spit Roast)</td>
<td></td>
</tr>
<tr>
<td>Lamb Patties (Broil, Pan Broil, Pan Fry)</td>
<td>Boneless Rolled Shoulder (Roast, Braise)</td>
<td>Neck Slices (Braise, Simmer in liquid)</td>
<td></td>
<td>Cubes for Shish Kebob</td>
<td>¼ French Style Leg (Roast)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Shank Half (Roast)</td>
<td></td>
</tr>
</tbody>
</table>
You will probably find it interesting and perhaps useful to see how a market lamb contributes to the Consumer Market.

**Meats**

The illustration below (Figure 61) shows the location and names of the main or “wholesale” cuts of lamb that come from a market lamb. Remember, you are looking at one side of this lamb. There are two of each of these main cuts in a lamb. Lamb chops come from the loin. Crown roast comes from the rack. Everyone enjoys a roast leg of lamb.

![Diagram of a lamb with labels for cuts](image)
Wholesale (Food-service) Cuts of Lamb

FOODSERVICE CUTS OF LAMB

The above cuts are a partial representation of NAMP/IMPS items. For further representation and explanation of all cuts see the Meat Buyers Guide by National Association of Meat Purveyors.

Meat charts and photographs provided by the North American Meat Processors Association, 1920 Association Drive, Suite 400, Reston, VA 20191-1547 (703)758-1900

Chapter 7 • Sheep Products
Sheep By-Products

<table>
<thead>
<tr>
<th>Candles</th>
<th>Coating for Pills</th>
<th>Yarn</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicines</td>
<td>Leather Goods</td>
<td>Pelts</td>
</tr>
<tr>
<td>Rugs</td>
<td>Photographic Film</td>
<td>Carpets</td>
</tr>
<tr>
<td>Clothing</td>
<td>Surgical Sutures</td>
<td>Cosmetics</td>
</tr>
<tr>
<td>Lanolin Products</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Wool is one of the two products sheep producers get from their animals. It is important to understand the characteristics of wool and how to harvest it properly so it can be an additional source of income for you.

Wool is a modified hair structure. It is more fine in diameter and more elastic than hair. Wool has a crimped, wavy appearance. (See figure 62.)

**Figure 62**
The Wool Fiber

### The Unique Properties of Wool

Wool is elastic. It holds its shape and will regain its shape after stretching. It resists sagging and wrinkling, and is soft, light in weight, and absorbent.

Wool absorbs water more readily than any other textile fiber. It keeps the wearer comfortable and warm because perspiration and outer dampness will not cling to the body.

It also acts as an excellent insulator. It keeps body heat from escaping and keeps the cold air out. It is also nonflammable, strong, and easily dyed.

### Glossary

#### Wool Terms

**Britch**—Wool from the hindquarters of the sheep, usually the coarsest on the body.

**Cotted**—Badly matted or tangled fibers of fleece.

**Density**—The closeness of the fibers per unit area of skin. This also influences the weight of the fleece.

**Diameter**—Determines the fineness of the fiber and is primarily what wool is graded on.

**Felting**—Wool fibers interlocking with each other, as if they were rubbed together.

**Fleece**—The wool from a single sheep.

**Grease**—Includes the yolk and soluble matter but not the vegetable matter.

**Kemp**—Abnormal, coarse, hairy, white fibers in some fleeces.

**Luster**—The glistening of wool fibers in the light.

**Scouring**—The process of removing the grease, dirt, etc., from the wool.

**Skirting**—Removing from the edges of whole fleeces the stained or inferior portions such as belly, legs, and neck.

**Staple length**—Of the wool fibers, this forms the basis of classifications of wool, determines the use of the wool and influences the weight of the fleece.

**Virgin wool**—Wool that has not been previously manufactured.

**Yolk**—The secretion in the wool, commonly called "grease"; main component is lanolin that is used in ointments and cosmetics; also contains cholesterol. The yolk protects the wool fiber from the weather.
Preparing Wool

Before the sheep is sheared, there are several things that will increase the quality of wool. Prepare a clean area for shearing. Pen the sheep in a clean, uncrowded space near the shearing area. The sheep should be where they will stay dry. Wet sheep should not be sheared. Do not feed or water the sheep for 12–24 hours before shearing.

If you have several breeds, shear the white-faced sheep first and keep their wool separate from the wool from black-faced sheep. Keep the wool from lambs separate from that of mature sheep.

Figure 63
Skirting Pattern
Normal skirting pattern includes removal of sweaty edges, short staples and stained wool.

Once the wool is removed from the sheep, there are several steps to prepare the wool for processing. Skirting is the removal of wool that does not match the bulk of the fleece. This includes: short wool, matted pieces, paint, skin pieces, areas of the fleece heavily contaminated with plant parts and stained or colored wool.

Grading is grouping fleeces according to any of the following: fineness, yield, color, staple length, staple strength, vegetable matter type and content.

When an individual fleece is evaluated and separated using the above criteria it is called sorting.

Selling Wool

There are several options for selling wool:

- Sell the wool directly to a shearer or buyer. This allows you to sell the wool quickly but you may not receive the best price.
- Sell the wool at a wool pool, which is usually held only one day each year. This means you must properly store the wool until then and transport it to the location.
- Sell the wool at a co-op. You must transport the wool to the co-op, where you can consign the wool and sell it later, in large lots of similar grade wool. This gives you the opportunity to receive a premium price for the wool.

Classes of Wool

The two major classes of wool are carpet wool and apparel wool. Carpet wool has much variation in diameter, length and color. Carpet wools are of low quality because of their variation and coarseness. The apparel wool is most common in the United States, which uses 90 percent of the raw wool. This type is used to produce clothing, blankets, draperies, upholstery, socks, etc. Apparel wool comes from fine, medium and long wool sheep.

Apparel wools are further classified according to use as: combing or staple wool, French or baby, combing and clothing wool. These classes are determined by the normal, unstretched length of the fiber in relation to the grade under the American or Blood System. See Basis For Wool Grades in Table 13.
Combing or Staple Wool

These are the longest wools within each grade and thus, usually the highest-priced and best. Combing wools are used mostly for making fabric. The long fibers are used to make worsted cloths and the short fibers (called noils) are used in making woolens and felt.

French Combing Wool

French combing wool is intermediate in length and can still be used to produce worsteds.

Clothing Wool

Clothing wool is the shortest in each grade. They are too short to be used for worsteds but can be used for woolens.

### Basis for Wool Grades

<table>
<thead>
<tr>
<th>American Grade</th>
<th>English or Bradford Spinning Count Grade</th>
<th>Micron Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fine</td>
<td>&lt;80s</td>
<td>under 17.70</td>
</tr>
<tr>
<td></td>
<td>80s</td>
<td>17.70-19.14</td>
</tr>
<tr>
<td></td>
<td>70s</td>
<td>19.15-20.59</td>
</tr>
<tr>
<td></td>
<td>64s</td>
<td>20.60-22.04</td>
</tr>
<tr>
<td>½ Blood</td>
<td>62s</td>
<td>22.05-23.49</td>
</tr>
<tr>
<td></td>
<td>60s</td>
<td>23.50-24.94</td>
</tr>
<tr>
<td>⅓ Blood</td>
<td>58s</td>
<td>24.95-26.39</td>
</tr>
<tr>
<td></td>
<td>56s</td>
<td>26.40-27.84</td>
</tr>
<tr>
<td>¼ Blood</td>
<td>54s</td>
<td>27.85-29.29</td>
</tr>
<tr>
<td></td>
<td>50s</td>
<td>29.30-30.99</td>
</tr>
<tr>
<td>Low ¼ Blood</td>
<td>48s</td>
<td>31.00-32.69</td>
</tr>
<tr>
<td></td>
<td>46s</td>
<td>32.70-34.39</td>
</tr>
<tr>
<td>Common</td>
<td>44s</td>
<td>34.40-36.19</td>
</tr>
<tr>
<td></td>
<td>40s</td>
<td>36.20-38.09</td>
</tr>
<tr>
<td>Braid</td>
<td>36s</td>
<td>38.10-40.20</td>
</tr>
<tr>
<td></td>
<td>&gt;36s</td>
<td>&gt;40.20</td>
</tr>
</tbody>
</table>

From SID Sheep Production Handbook

### Grades for Apparel Wools

Wool grading is based primarily on fiber diameter or fineness. There are several systems for grading wool. (See Table 13.)

### English, Bradford or Spinning Count System

This system is based on the number of hanks of yarn that can be spun from one pound of wool top. Each represents 560 yards. A wool top is the combed fibers that are long enough to spin.

**Example:** Wool of 50s quality should spin 50 x 560 yards of yarn per pound of top.

### American or Blood System

This system divides all wool, from finest to coarsest, into seven market grades: fine, ½ blood, ⅓ blood, ¼ blood, low ¼ blood, common and braid. Originally, these blood names were based on the amount of Merino blood in the sheep producing the wool. Now these names indicate wool of a certain diameter and have no connection with the amount of Merino breeding in the sheep.

### Objective Measurement System (Micron or Fiber Diameter System)

This system microscopically measures the diameter of the wool fibers in microns. A micron is one millionth of a meter. This is the most objective way to grade wool. This is becoming the preferred way in which wool is graded.
Shrink

Shrink is determined by the amount of yolk, moisture, perspiration, dirt, manure, etc. that is in the wool. Shrink is related to grade; the finer diameter grades of wool shrink more than the lower grades. Shrinkage can range from under 30 percent to more than 80 percent. The usual range is 50–65 percent.

How shrink is computed:

1. 10 lbs. of grease wool before scouring - 4.77 lbs. of clean wool after scouring
   5.23 lbs. loss in wool scouring
2. 5.23 lbs. loss per 10 lbs. grease wool = 52.3 percent shrink

Wool Contamination

Many things can contaminate wool. This ultimately lowers its value. Vegetable matter contamination includes things like: burrs, hay, seeds, leaves, etc. Paint brands cause contamination because the material used cannot be scoured out of the fleece. Use only scorable paints for identification or branding.

Hay baling twine can also be a serious contaminant in wool, because small pieces of the twine become tangled with the fleeces.

Wool should not be packaged in plastic feed bags because the plastic from these also contaminates the wool. Other sources of contaminants are stains from worming or foot rot medication.

Reject Conditions

A fleece may be rejected because:

Color

Canary-colored wool will not come out white after scouring, so it cannot be used to make white fabrics. Black or gray wool cannot be used for white fabrics because it cannot be dyed. Kempy wool has brittle, white, hollow, tapered fibers and is rejected because it will not take dye.

Seedy and Chaffy Wool

This wool has an abnormal amount of weed, seeds, straw, hay, or chaff in the fleece.

Burry Wool

This has hard burrs in the wool.

<table>
<thead>
<tr>
<th>Breeds of Sheep and Grades of Wool</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fine-Wool Breeds</strong></td>
</tr>
<tr>
<td>Merino</td>
</tr>
<tr>
<td>Rambouillet</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

Table 14
Cotted Wool

A felted condition (the wool fibers interlock) because of a lack of yolk causes this wool to be rejected.

Tender Wool

This is wool with a general weakness throughout the length of the fiber or a definite break at a uniform distance from the base or tip of the fiber throughout the fleece. It is rejected because it won't hold together during manufacturing. This condition is a result of disease, sickness or a severe nutritional deficiency.

Dead Wool

Wool pulled from sheep that died and were not slaughtered usually breaks during processing and is not very valuable.

Tags

Wool contains manure, mud balls, and urine-stained fibers.

Wool Processing

Processing converts the raw wool into the material that will be used to make cloth, yarn, carpet or other products.

Scouring removes impurities from the grease wool. The wool is then dried to remove water.

Carding disentangles and separates the wool fibers. Combing removes the vegetable matter and the short, tangled fibers.

Once carded and combed, the wool is spun, roved, wound, or twisted. Roving reduces the wool top in size. The process is similar to spinning, when the wool is drawn into the right thickness of yarn. The yarn is then transferred to cones or dying tubes by winding. Multi-ply yarn is made when two or more yarns are twisted or wrapped together.

The yarn may be used for a variety of things. It may be woven to form fabric. Weaving is the interlacing of two sets of yarn. It may also be knit to form a fabric. Knitting is the interlacing of yarn with needles in a series of connected loops.

Once the wool fabric leaves the loom, it goes through a finishing process. This may include dyeing, mothproofing, pre-shrinking, or many other procedures.

Judging and Classification of Wool

At a fleece show, fleeces are evaluated on four criteria: character, color, uniformity, and wastiness.

Character

Look for a distinct and even crimp, or waviness, throughout the entire fiber length. This trait improves the general appearance and spinning quality of the fleece.

Color

Bright, white to cream-colored fleeces are most desirable. Excessive amounts of black fiber affect the purity of the wool.

Uniformity

This refers to the minimum of variation in fiber diameter. Uniform fleeces require less sorting into different categories.

Wastiness

Wool fibers should be strong and elastic. If they are weak they will break apart in processing. Healthy, properly-fed sheep usually produce sound wool.
<table>
<thead>
<tr>
<th>Grade</th>
<th>Staple</th>
<th>Length Class</th>
<th>Clothing</th>
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<td>36/40/44s</td>
<td>5&quot; &gt;</td>
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*From SiD Sheep Production Handbook, 1988.*