

## Lesson 4: Lamb and Mutton

Ovine (sheep species) carcasses are both quality and yield graded. After being graded, the carcasses are cut into wholesale cuts and then into retail cuts. Ovine carcasses usually weigh between 50 and 80 pounds.

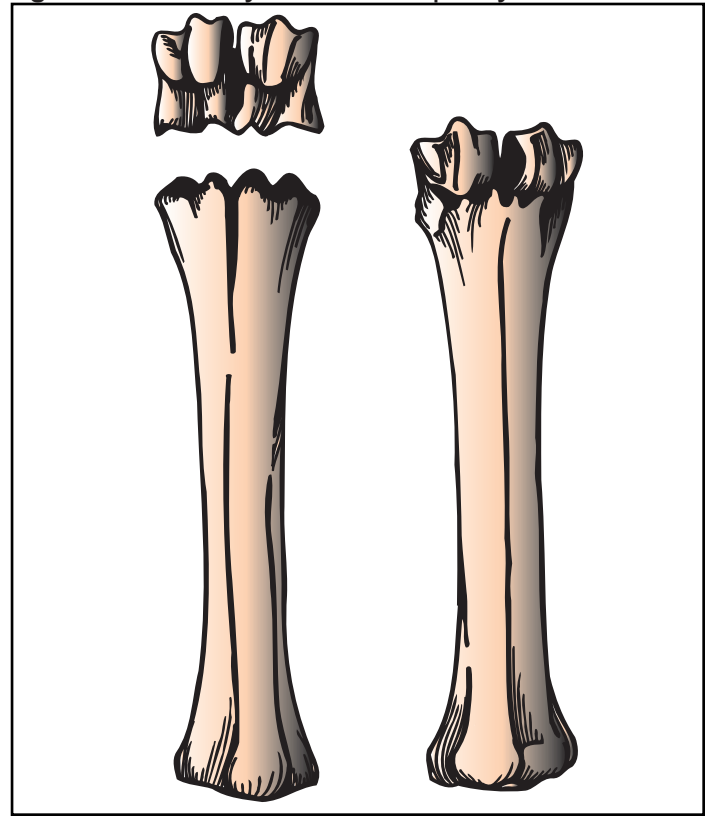
### Quality Grading

The maturity (age) of the animal is the single most important factor in determining the quality grade. There are three maturity classes: lamb, yearling mutton, and mutton. For grading purposes, the USDA has divided the lamb class into young lamb and older lamb (see Figure 4.2). Each maturity class has its own standards. In order to determine the quality grade of the carcass within each class, the fat streakings inside the flank area must be evaluated, plus a minimum degree of lean and fat firmness must be present.

Descriptions or definitions for the classes of typical ovine carcasses help in determining the maturity of the carcass. Maturity is determined by evaluating the carcass for break joints or spool joints on the front shanks, the size and flatness of the rib bones, and the color and texture of the lean. In the dressing of ovine carcasses, both front cannon bones (trotters) are usually left attached. There are some cases when one or both trotters may be removed. Trotters will end in perfect break joints, imperfect break joints, or spool joints. Figure 4.1 shows break joints and spool joints. A carcass with perfect break joints on both trotters will be classed as lamb or yearling mutton based on other evidences of maturity. A carcass with spool joints on both trotters will be classed as yearling mutton or mutton based on other evidences of maturity. If the carcass has one break joint and either a spool joint or a missing joint on the other trotter, it can be classed as lamb if other maturity characteristics of lamb are present.

Lamb carcasses must have a break joint on one of the front shanks. Their ribs are flatter and narrower than yearling mutton or mutton. The rib bones become wider as the lamb ages. In young lamb carcasses, the lean in the flank area is slightly dark pink, and for older lamb it is light red. In all lamb carcasses, the lean is fine-textured.

Figure 4.1 - Break Joints versus Spool Joints



Yearling mutton carcasses may have either spool or break joints on their front shanks. They have wider and flatter rib bones. The lean is slightly dark red and slightly coarse in texture.

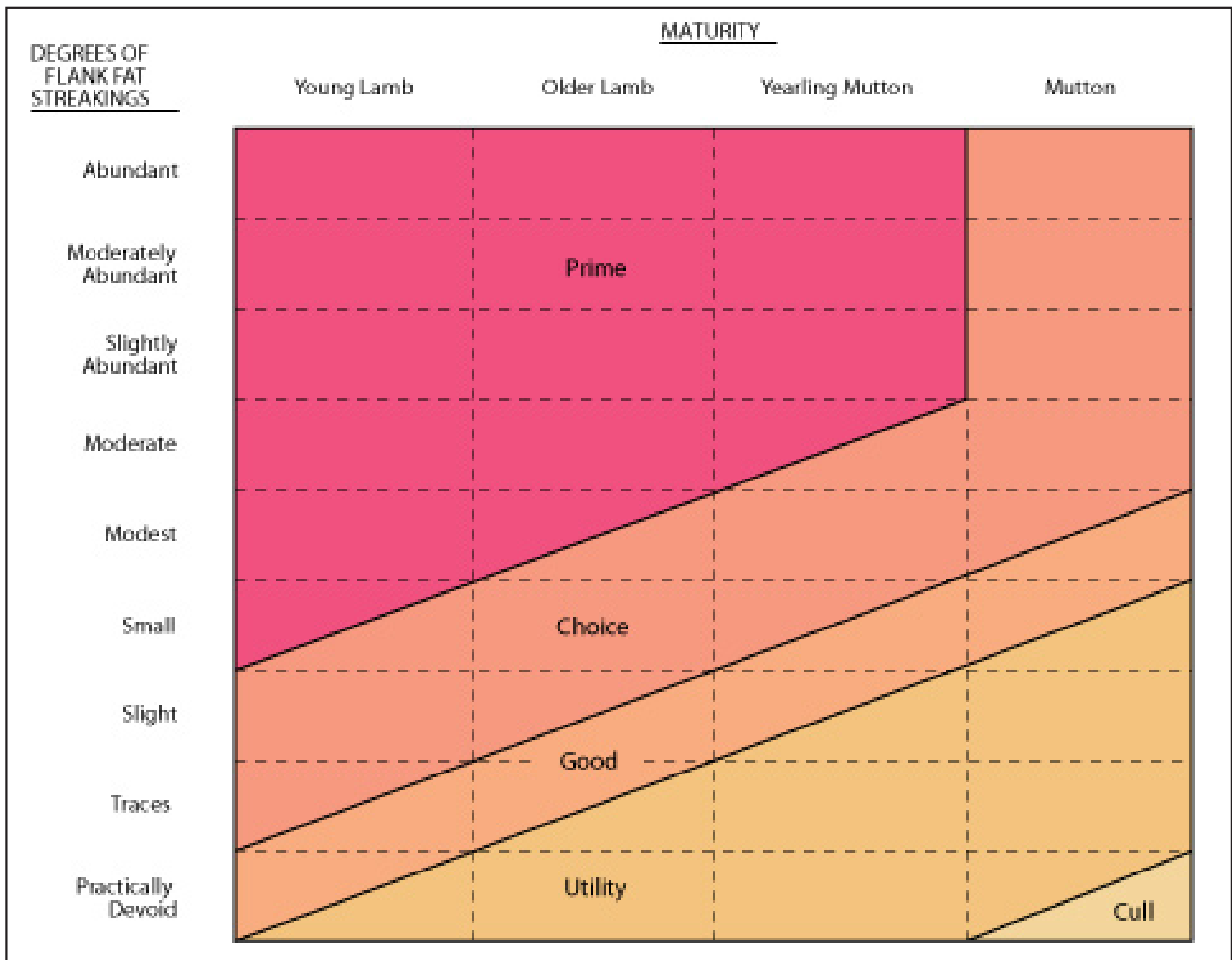
Mutton carcasses have only spool joints on their front shanks. Rib bones are wide and flat. The lean is dark red and coarse-textured.

The other determining factor of lamb quality grades is the amount of flank streaking. Flank streaking is the amount of fat streaks within and upon the inside flank of the carcass. The greater the degree of flank streaking, the more palatable the carcass will be. There are ten degrees of flank streaking: abundant, moderately abundant, slightly abundant, moderate, modest, small, slight, traces, practically devoid, and devoid.

After maturity and amount of flank streaking are determined, the quality grade is determined using the chart in Figure 4.2. The quality grades are prime, choice, good, utility, and cull. Notice that prime can be only lamb or yearling mutton and that cull can only be mutton. The chart is similar to the quality grade chart for beef. First, the grader locates the maturity

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Figure 4.2 - Quality Grades of Ovine Carcasses



of the carcass on the chart and then locates the flank streaking degree. The point where the two meet determines the quality grade. For example, an older lamb with a small amount of flank streaking would be choice. Almost all lamb carcasses reach the choice grade.

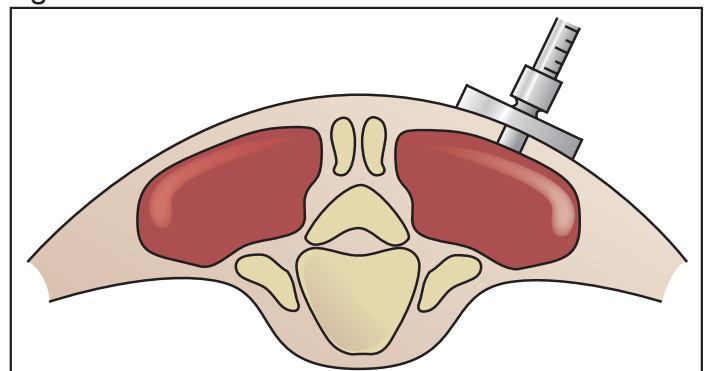
## Yield Grading

Ovine yield grades provide estimates of the amount of semi-boneless or boneless closely trimmed (.10 in fat or less) major retail cuts from the carcass. Ovine yield grades are based on the amount of external fat present. For carcasses with normal fat distribution, the external fat is measured over the center of the ribeye muscle. This measurement is taken perpendicular to the outside surface between the 12th and 13th ribs

(see Figure 4.3). An approved measuring device must be used.

If the carcass has unusual fat distribution, the grader adjusts the ribeye fat measurement upward or

Figure 4.3 - Location of External Fat



downward depending on the fat distribution over the rump, outside the shoulders, breast, flank, cod, or udder. An adjustment of .05 inch is common with some adjustments being greater. The grader may take an additional measurement (body wall thickness) to help determine the adjustment. As the amount of external fat increases, the percent of retail cuts decreases. An accurate adjusted fat measurement is important because for every .05 inch in change, the yield grade changes one-half yield grade. The formula that is used to determine the yield grade is  $.4 + (10 \times \text{adjusted fat thickness in inches})$ .

Example:

During the evaluation of an ovine carcass, the grader determines that the external backfat is not evenly distributed. The external backfat is adjusted to .15.

$$.4 + (10 \times .15) = \text{yield grade}$$

$$.4 + (1.5) = \text{yield grade}$$

$$1.9 = \text{yield grade}$$

A yield grade of 1.9 means the carcass is at the bottom end of a yield grade of 1. There is not much of a difference between a yield grade of 1.9 and a 2.0, so accuracy is important. The 1.9 is considered a yield grade 1 and the 2 a yield grade 2.

Ovine carcass yield grades range from 1 to 5 with a yield grade of 1 being leaner than a yield grade of 5. Figure 4.4 lists adjusted fat thickness ranges for each of the five yield grades.

Figure 4.4 - Yield Grades with Adjusted Fat Thickness Ranges

Yield Grade 1 - 0.00 to 0.15 inch
Yield Grade 2 - 0.16 to 0.25 inch
Yield Grade 3 - 0.26 to 0.35 inch
Yield Grade 4 - 0.36 to 0.45 inch
Yield Grade 5 - 0.46 and greater

## Wholesale Cuts of Lamb

The wholesale cuts of lamb and mutton are the leg, loin, rib/rack, shoulder, and foreshank/breast (see Figure 4.5).

## Retail Cuts

Wholesale cuts are cut into various retail cuts. The following is a list of the retail cuts from each wholesale cut.

### Leg

- French style leg
- American style leg
- Leg steak
- Lamb leg (sirloin half)
- Sirloin chops

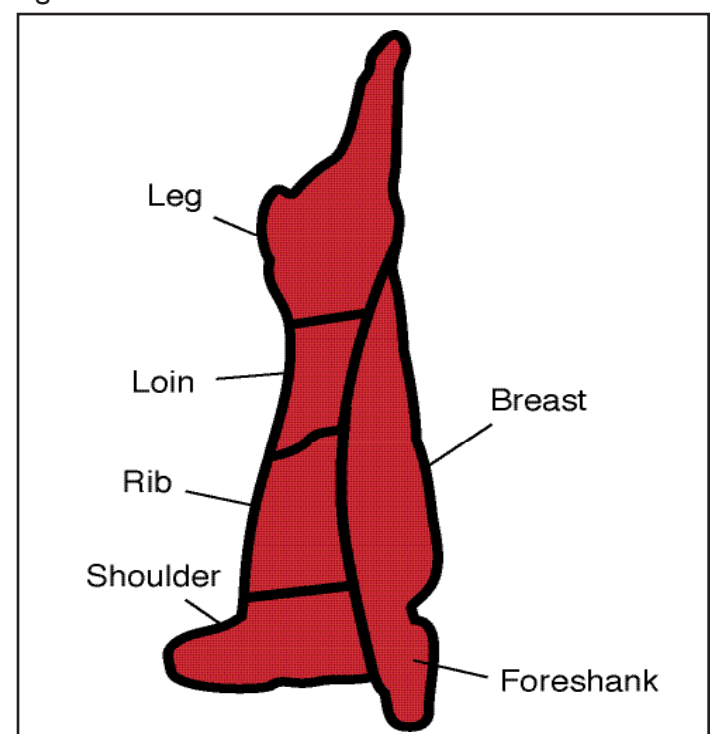
### Loin

- Loin roast
- Loin chops
- Double loin chops

### Rib/Rack

- Rib roast,
- Rib chops
- Rack of lamb

Figure 4.5 - Wholesale Cuts of Lamb



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## Shoulder

- Square cut shoulder
- Rolled shoulder
- Arm chop
- Blade chop
- Arm roast
- Blade roast

## Foreshank/breast

- Breast
- Riblets
- Fore shank

## Variety meats

- Patties
- Liver
- Kidney
- Heart

## Summary

Ovine carcasses are graded for both quality and yield. Quality grading provides an estimate of the potential eating quality of the meat by evaluating maturity and flank streaking. Yield grades predict the amount of semi-boneless and boneless closely trimmed retail cuts from the ovine carcass. Carcasses are then sold as wholesale and retail cuts.

## Credits

Boggs, Donald L., and Robert A. Merkel. *Live Animal Carcass Evaluation and Selection Manual*. 4th ed. Dubuque: Kindall/Hunt Publishing Company, 1993.

*Meat Evaluation Handbook*. Chicago: National Livestock and Meat Board, 1988.

United States Department of Agriculture. Agricultural Marketing Service. Livestock and Seed Division. United States Standards for Grades of Lamb, Yearling Mutton, and Mutton Carcasses. (Effective July 6, 1992.)