

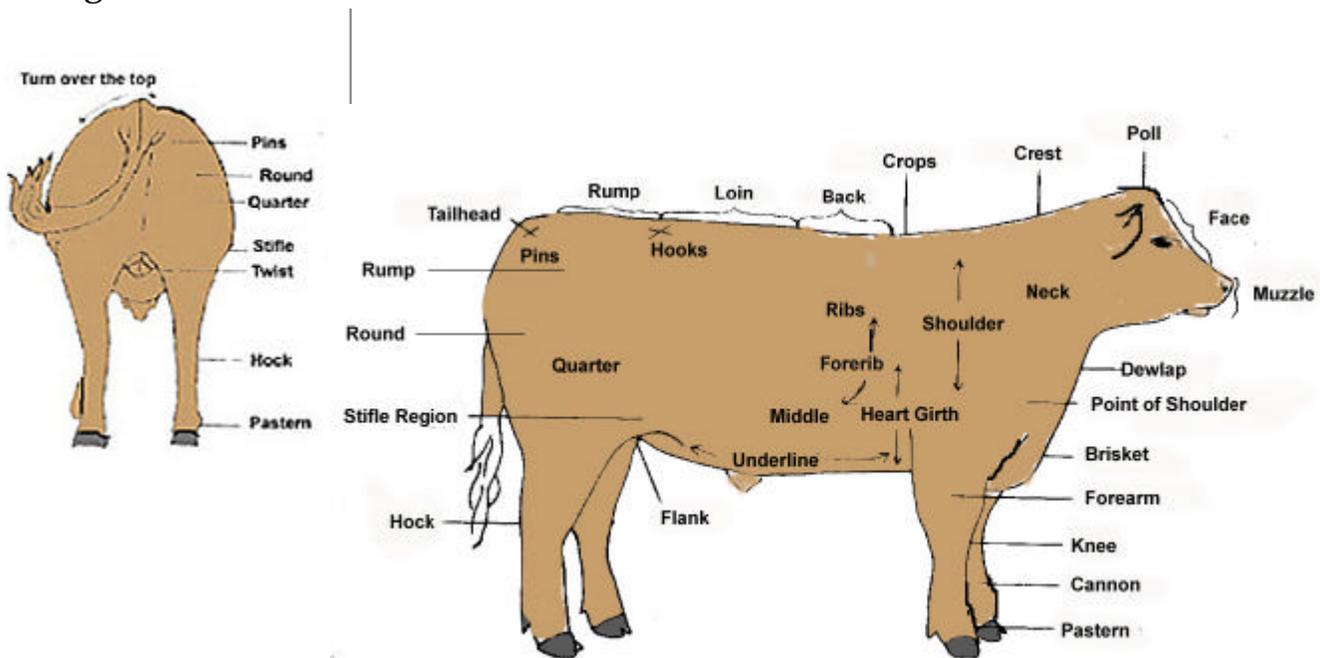
# EVALUATING MARKET STEERS FROM A GRADING STANDPOINT

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This handout is to help the reader reach their goals of being a more accurate evaluator of market steers.

Before one can start judging market steers, they must become familiar with the parts. Figure 1 illustrates the parts of a live beef steer from both the side and rear views.

Figure 1: Parts of the market steer



Courtesy of Boggs and Merkel. Livestock Evaluation.

After learning the parts, it is much easier to follow market steer evaluation techniques. Hopefully, the parts have been placed into memory and it is time to move on to the principles of market steer selection.

**Work, practice, and dedication are the keys to becoming an accurate evaluator of market steers.**

First, please notice Table 1 below. Table 1 shows the average of various carcass traits on beef animals from packing plants across the country. The data comes from the National Beef Quality Audit.

1995 National Beef Quality Audit

Carcass Weight	748 lbs.
Fat Thickness	.47 "
Ribeye Area	12.8 sq. in
Kidney, Pelvic, Heart Fat	2.1%
USDA Yield Grade	2.8
Marbling	Small - Low Choice
Percent of Primes and Choices	48%
Yield Grades 1 and 2	58%

Table 1: National Beef Quality Audit, 1995

Market steers are selected on a combination of the traits listed below:

- ✓ Muscle
- ✓ Correctness of condition (finish)
- ✓ Volume or Body Capacity
- ✓ Structural Correctness
- ✓ Balance

This handout will deal only with the principles involved to evaluate for *grading emphasis*. The two most important criteria are listed below.

**Muscling** relates to the amount of meat and shape or thickness. Some areas to evaluate for muscling include the shoulder, top, loin, rump, and quarter.

**Correctness of condition** or **finish** refers to amount of fat distributed from front to rear. Areas to evaluate for condition or finish include the brisket, behind the shoulders, over the ribs, flank and cod.

Using the first two traits and knowing the weight of market steers, one can estimate both a **quality grade** and **yield grade**. The beef industry utilizes this dual grading system. It is imperative to understand both **quality** and **yield grading** because each beef carcass is priced according to these two grades.

## Quality Grading vs. Yield Grading

### Quality Grading

Simply put, it is the total amount of intramuscular fat streaks inside the ribeye. The ribeye is located opposite the 12<sup>th</sup> and 13<sup>th</sup> rib. Also, quality grades vary according to the texture of the lean in the ribeye and age of the market steer. Assuming A maturity, the quality grades range from most desirable to least desirable as follows;

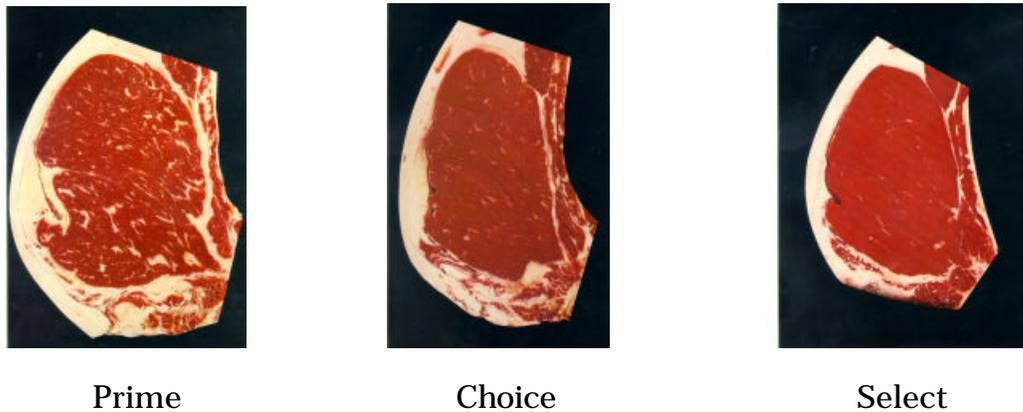


Figure 2. USDA Beef Quality Grades. Adapted from USDA Marbling Score Cards, courtesy of NCBA and USDA.

*How does one predict this marbling score?*

External fat is our best visual estimate when predicting grade quality. Rule of thumb, if a market steer possesses .40-.45” of backfat uniformly over his ribcage, we assume he should grade choice if taken to the rail. The less fat a market animal possesses (externally), the less likely the steer will reach the Choice grade.

Notice Steer A appears to indicate a much greater amount of fat from front to rear in Figure 3. Conversely, steer B appears much leaner and freer of fat. The steer more likely to reach the choice grade is Steer A.

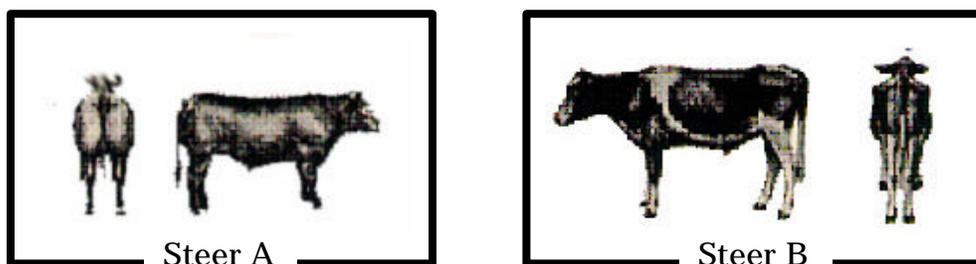


Figure 3. Fat Steer vs. Lean Steer

## Yield Grade Factors

There are four factors measured to formulate a proper yield grade.

- ✓ Fat thickness
- ✓ Ribeye area
- ✓ Carcass weight
- ✓ Kidney-Pelvic and Heart fat

The mathematical numbers used to derive yield grades will follow the description of all the measurements.

**Fat thickness (FT)** is measured between the 12<sup>th</sup> and 13<sup>th</sup> ribs, opposite the rib eye and is the major factor when figuring yield grades. This measurement can also be adjusted according to other fat deposits. Some common depots include through the brisket, over the chuck, round, and associated cod fat.

The **ribeye area (REA)** is measured using a grid. The measurement is taken between the 12<sup>th</sup> and 13<sup>th</sup> rib and is not to be adjusted for any reason.

The **hot carcass weight (HCW)** is also a fixed variable and may not be adjusted. Heavy carcasses are discounted severely. This is the reason steers weighing in excess of 1,300 pounds are sometimes evaluated harshly in the show ring. An average dressing percent of slaughter cattle is 62%. If one multiples 1,300 lbs by 62% the answer is 806 lbs. This weight is still desirable, but as carcass weight begins to exceed 850 lbs, major problems associated with beef cuts becoming too large for consumers are a major problem.

The final factor is **kidney-pelvic-and heart fat (KPH)**. This is a measurement of the internal fat surrounding the vital internal organs. This is very difficult to predict live, but the variation among beef cattle is minimal. Most will have between 2-3% KPH.

## Yield Grading

Yield grades are used to more properly estimate cutability. **Cutability** is defined as the percent of boneless, closely trimmed, retail cuts. Basically, the leaner and more muscular the animal... the higher the cutability and lower the numerical yield grade. Table 1 outlines the differences between steers ranging in yield grade from 1 to 5.

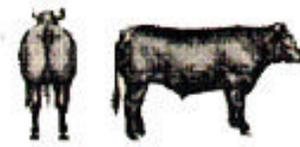
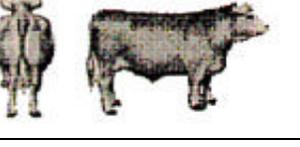
<b>Yield Grade</b>	<b>Visual Example</b>	<b>% Cutability</b>
Yield Grade 1		52.3 % or more
Yield Grade 2		52.2-50%
Yield Grade 3		49.9-47.7%
Yield Grade 4		47.6-45.5%
Yield Grade 5		45.4% or less

Table 2. Courtesy of Beef Cattle Evaluation Handbook, USDA Slaughter Grades, Texas Agricultural Extension Service

### Calculating and Figuring Yield Grades

There are four factors measured to formulate a proper yield grade.

- ✓ Fat thickness
- ✓ Ribeye area
- ✓ Carcass weight
- ✓ Kidney-Pelvic and Heart fat

1. Fat Thickness (FT)= +.25 for ever 1/10 inch of fat is added to a Preliminary Yield Grade (PYG) of 2.00. This measurement should be taken at approximately  $\frac{3}{4}$  the length of the ribeye.

Example: .2 in fat= 2.50

.3 in fat= 2.75

.4 in fat= 3.00

.5 in fat= 3.25

2. Ribeye Area (REA) =  $\frac{REA-11}{3}$  x then change sign and add to PYG

Example:  $\frac{12-11}{3} = .3$  - change sign -3, add to PYG

Example:  $\frac{10-11}{3} = -.3$  change sign +.3; add to PYG

3. Kidney-Pelvic-Heart Fat (KPH)

Example: 2.5% KPH = -.2 to PYG

Example: 3.0% KPH = -.1 to PYG

Example: 3.5% KPH = -.0 to PYG

Example: 4.0% KPH = +.1 to PYG

Example: 4.5% KPH = +.2 to PYG

4. Carcass Weight: +/- .1 for each 25 pounds from 600

Example: 700 pounds = adjustment of +.4 to PYG

Example: 550 pounds = adjustment of -.2 to PYG

Example: 800 pounds = adjustment of +.8 to PYG

Notice when finding yield grades, the evaluator must convert live weight to carcass weight. Estimating the dressing percentage does this. Dressing percentage is defined as the proportion of chilled carcass weight to the animal's slaughter weight. Average dressing percent in market steers is 62%. Some factors affecting dressing percent include:

- ✓ The amount of fill in the steer
- ✓ Amount of muscle
- ✓ Weight of hide, head, feet and horns
- ✓ Amount of fat

### Combining Quality and Yield Grade

Both quality and yield grades are equally important. The optimum steer should possess sufficient marbling (0.4" of backfat opposite the ribeye) and still maintain a yield grade in the 2.0-2.9 range.

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