

## Basics of Beef Carcass Grading

### Common carcass grading terms and definitions:

- **Live weight:** how much the steer weighed (in pounds) at the fair
- **Hot carcass weight (HCW):** how much the carcass weighed (in pounds) after harvest
- **Dressing percentage (DP):** hot carcass weight divided by live weight, expressed as a percent.  
 $DP = (HCW \div LW) \times 100\%$
- **Backfat:** external fat thickness (in inches) measured at the 12<sup>th</sup> rib,  $\frac{3}{4}$  of the length of the ribeye from the spine
- **Kidney, pelvic and heart (KPH) fat:** estimate of the amount of kidney, pelvic and heart fat as a percentage of carcass weight
- **Ribeye area (REA):** area of the ribeye muscle (in square inches) measured at the 12<sup>th</sup> rib
- **Ribeye area per hundred-weight (REA/CWT):** ribeye area divided by hot carcass weight expressed as hundred-weight.  $REA/CWT = REA \div (HCW \div 100)$
- **Yield grade (YG):** equation based on balance between muscle and fat; ranges from 1 to 5
  - $YG = 2.5 + (2.5 \times \text{backfat}) + (0.2 \times \text{KPH fat}) + (0.0038 \times \text{HCW}) - (0.32 \times \text{REA})$
- **Maturity:** classification of the age of the carcass; ranges from “A” (youngest) to “E” (oldest). 4-H and FFA carcasses shouldn’t be older than “A”
- **Dark cutter:** beef exhibits a dark, purplish red to almost black lean color compared to a normal cherry red. This results from stress prior to slaughter and is a result of high muscle pH.
- **Marbling score:** numerical value representing the amount of intramuscular fat in the ribeye
- **Quality grade:** based on maturity and marbling; reflects flavor and tenderness of the beef. See Table 1.
- **Cutability:** equation similar to yield grade that estimates boneless, closely-trimmed retail cuts from a beef carcass
  - $\text{Cutability} = 51.34 - (5.78 \times \text{BF}) - (0.462 \times \text{KPH}) - (0.0093 \times \text{HCW}) + (0.74 \times \text{REA})$

**Table 1.** Quality grades, marbling calls, and marbling scores for “A” maturity carcasses.

Quality Grade	Marbling Call	Marbling Score
Prime <sup>+</sup>	Abundant	900-999
Prime <sup>0</sup>	Moderately Abundant	800-899
Prime <sup>-</sup>	Slightly Abundant	700-799
Choice <sup>+</sup>	Moderate	600-699
Choice <sup>0</sup>	Modest	500-599
Choice <sup>-</sup>	Small	400-499
Select <sup>+</sup>	Slight	350-399
Select <sup>-</sup>	Slight	300-349
Standard <sup>+</sup>	Traces	200-299
Standard <sup>-</sup>	Practically Devoid	100-199

### MT Steer of Merit Standards (2015)

Item	Range/Standard
Hot Carcass Weight*	650 – 950 pounds
Dressing Percentage	55 – 68%
Back Fat*	0.25 – 0.60 inches
Ribeye Area	≤ 17.5 square inches
Yield Grade	≤ 2.99
Dark Cutter	No
Quality Grade	Choice <sup>-</sup> or better
Cutability	≥ 51%

After evaluation, carcasses are ranked by sorting the data in three steps:

1. Steer of Merit (Yes or No)
2. Price per hundred-weight (highest to lowest)
3. Cutability (highest to lowest)

Carcasses are priced based on a grid formulated from USDA data the third week of June each year. Grid prices for 2015 are listed below.

### SOM Carcass Pricing (2015)

Base Price	\$237.89/cwt
YG 1	\$3.25
YG 2	\$1.43
YG 3	\$0.00
YG 4	(\$10.77)
YG 5	(\$15.23)
Prime	\$13.43
Ch+/Ch0	\$3.33
Ch-	\$0.00
Select	(\$6.67)
Standard	(\$24.71)
Dark Cutter	(\$33.99)

For example, a yield grade 2, Choice average carcass would be priced at \$242.65/cwt (\$237.89 + \$1.43 + \$3.33). On the other hand, a yield grade 4, Choice minus carcass would be priced at \$227.12/cwt (\$237.89 - \$10.77 + \$0.00).