



Pennsylvania Center for Beef Excellence

Guide to Understanding Carcass Data Factors

Thank you for participating in our Carcass Data Collection Program. Carcass data collection is an important management tool that is underutilized in our industry today. Our goal is to provide producers with the additional tools available to increase profitability and the overall sustainability of the cattle industry. By understanding all factors utilized to determine carcass value, producers can adjust feeding and management practices to provide a more uniform, value-added product to the beef supply chain. The guide below will assist you in understanding the factors that were used to determine the quality and yield grade of your carcass.

Terminology

Carcass ID Number: Number assigned to an individual carcass by packing plant to track carcass throughout process. Carcass ID Number will correlate to a specific animal cross-referenced by the animal's individual ear tag.

Maturity: Physiological age of animal determined by averaging skeletal lean maturity. Skeletal maturity is determined by ossification of bone and bone characteristics of the thoracic, lumbar and sacral vertebra. Lean maturity is determined by color and texture of the ribeye muscle. As animal progresses in age, the cartilage will turn to bone and the lean will become darker and texture will tend to become coarse. Greater emphasis is placed on the skeletal maturity in carcasses outside of "A" maturity due to postmortem factors that can influence color and texture in older animals. If final maturity is under a difference of 40 then a simple average is used. If difference is greater than 40, then average and adjust 10% towards the skeletal maturity. Different rules apply to crossing the B/C maturity line.

Carcass Maturity	Approximate Live Age
A	9 months - 30 months
B	30 months – 42 months
C	42 months – 72 months
D	72 months – 96 months
E	Greater than 96 months



Hot Carcass Weight: Weight of dressed carcass ready for further processing. This can also be referred to as pay weight. Hot Carcass weight will be approximately 60% - 64% of live weight for most feedlot animals. Acceptable carcass weights generally range between 600 to 900 pounds.

Quality Grade: An evaluation grade of factors that determine palatability of meat based on marbling and maturity. Amount of marbling, distribution of marbling, color, firmness and texture are considered when determining overall quality grade.

Beef Quality Grade Chart					
Degrees of Marbling	Maturity				
	A	B	C	D	E
Abundant	PRIME				
Moderately Abundant					
Slightly Abundant	COMMERCIAL				
Moderate	CHOICE				
Modest					
Small					
Slight	SELECT			UTILITY	
Traces	STANDARD				
Practically Devoid				CUTTER	

Adjusted PYG: The adjusted preliminary yield grade (PYG) factor is determined by grader to account for fat cover over the entire carcass. The backfat measurement is the starting point then it is adjusted upward for increased fat thickness over the entire carcass or adjusted downward for lean carcasses.

Yield Grade: Value assigned determined by evaluating hot carcass weight, ribeye area, fat thickness opposite ribeye (backfat) and percentage of kidney/pelvic/ heart fat. Yield grade predicts cutability which is defined as percentage of closely trimmed, boneless, retail cuts that will be derived from a carcass. *Important Note* the lower the yield grade the higher percentage of closely trimmed retail cuts will be obtained



Backfat: Measurement of fat opposite the ribeye muscle at the 12th rib when carcass is ribbed between the 12th and 13th rib. This standard measurement is taken by measuring fat thickness three-fourths the length of the ribeye from the chine bone with a PYG ruler.

Fat Measurement Opposite Ribeye in tenths	PYG
0	2.0
.2	2.5
.4	3.0
.6	3.5
.8	4.0
1.0	4.5

Ribeye Area: size of the ribeye muscle that is exposed on the 12th rib when carcass is ribbed between the 12th and 13th rib. Measurement is in square inches obtained by utilization of a dot grid. The table below demonstrates ribeye size required (no adjustment) for hot carcass weight. If ribeye is smaller than required, the final yield grade will be adjusted upward. If ribeye is larger than required, the final yield grade is adjusted downward. Ribeye size required increases by .3 inches for every 25 lbs increase in hot carcass weight.

Hot Carcass Wt	Ribeye Required	Hot Carcass Wt	Ribeye Required
500	9.8	750	12.8
550	10.4	800	13.4
600	11.0	850	14.0
650	11.6	900	14.6
700	12.2	950	15.2

KPH: Factor that accounts for internal fat in or around the kidney, pelvic and heart region. It is based off a percentage of fat present compared to hot carcass weight. Most carcasses will have KPH that will fall between 1.5% to 4% of hot carcass weight.

KPH Percentage	Adjustment
4.5	+.2
4.0	+.1
3.5	0
3.0	-.1
2.5	-.2



2.0	-.3
1.5	-.4
1.0	-.5

Marbling: Degree of intramuscular fat displayed on ribeye muscle at the 12th rib when carcass is ribbed between the 12th and 13th rib. Marbling is utilized to determine quality grade. Marbling is evaluated in tenths as there are 100 units between marbling score classifications.

Marbling Score	Quality Grade
AB - Abundant (0 – 100)	Prime +
MDA - Moderately Abundant (0-99)	Prime
SLA - Slightly Abundant (0-99)	Prime -
MD - Moderate (0-99)	Choice +
MT - Modest (0-99)	Choice
SM - Small (0-99)	Choice -
SL - Slight (50-99)	Select +
SL - Slight (0-49)	Select -
TR - Traces (34-99)	Standard +
PD – Practically Devoid (67-99) to TR - Traces (0-33)	Standard
PD – Practically Devoid (0-66)	Standard -

Equations: Use following mathematical equations to determine yield grades.

Yield Grade = Adjusted PYG – Ribeye Adjustment – KPH Adjustment

Adjusted PYG = Visual determination by USDA grader

KPH = Adjustment factor found on KPH Chart on page 3

Ribeye Adjustment = Factor determined by calculating difference between actual ribeye and ribeye needed for that carcass weight multiplied by .3 then rounded to tenth. If larger than required then subtract factor from PYG, if smaller than required add factor to PYG.

Please refer to charts provided for determining specific factors required to determine your individual carcass calculations. The attached examples are included to assist you in understanding your results by providing you with a template to follow throughout the calculation process. Please contact the Center for Beef Excellence at 717-705-1689 if you need further assistance. Thank you once again for participation in our Carcass Data Collection Program.