



WASHINGTON STEER OF MERIT

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WSU PEER
REVIEWED

EB1460E

Washington Steer of Merit

Purpose of Program

1. To create an awareness of current market demands.
2. To recognize exhibitors and breeders for producing high-value carcasses.
3. To provide information about carcasses produced in youth shows.
4. To identify selection, breeding, nutrition, and management practices that result in desirable carcasses.
5. To promote and improve the educational value and public image of youth shows.

Requirements for Washington Steer of Merit

1. **Hot Carcass Weight.** Must weigh 600 to 950 pounds. Based on current market conditions, the carcass weight requirements may be adjusted to be consistent with current industry standards.
2. **Ribeye Area.** The sliding-scale ribeye area (square inches) requirement is based on carcass weight and is derived from the USDA Yield Grade equation. The minimum ribeye area requirement is equal to or greater than $(\text{hot carcass weight} \times 0.012) + 3.8$ for carcasses up to 775 pounds and those carcasses weighing 775 pounds and above will still have the 13.1 square inch requirement.

Hot Carcass Weight (lb)	Minimum Ribeye Area Requirement (sq. in.)
600	11.0
650	11.6
700	12.2
750	12.8
775	13.1
800	13.1

3. **Quality Grade.** Low Choice or higher.
4. **Yield Grade.** Yield grade requirements depend on the quality grade and are shown below. Yield grades are reported to the tenth of a yield grade (the 1/100th decimal digit is dropped; for example, a yield grade of 2.99 is reported as 2.9).

USDA Quality Grade	Maximum USDA Yield Grade
Low Choice	2.9
Average/High Choice	3.4
Prime	3.9

5. **Carcasses** must be free from defects that may significantly reduce carcass value. For example, carcasses with excessive (greater than 5%) muscle fat or bone removed due to bruises or localized infections should be eliminated.
6. **Average Daily Gain.** Minimum of 2.70 pounds per day. Steers must be fed a minimum of 100 days before the show (this requirement does not conflict with ownership requirements and tagging can occur at the same time as weigh-in).

Requirements for the Washington Beef Carcass of Merit

Identical to Washington Steer of Merit except Average Daily Gain is not included. Use Beef Carcass of Merit if an initial live weight cannot be obtained at least 100 days prior to the show.

Changes in Merit Requirements

Individual programs may need to adjust the requirements outlined in this bulletin. If requirements are changed, add the local county or area name to the name of the merit program.

Placement of Carcasses

Neither the Washington Steer of Merit nor Beef Carcass of Merit programs have been designed to rank carcasses. Instead, these programs award a superior level of achievement in producing high cutability and quality carcasses. Many good ranking systems are available and can be designed to use Steer of Merit data. Select a ranking system that is consistent with demands of local producers and packers. You can obtain ranking systems through your county Extension office. Do not rank carcasses when different individuals collect data from several plants.

To aid producers in evaluation of carcasses, a WSU Livestock Carcass Grade & Cutability Calculator has been developed (Smith and Busboom 2015). The app is free to download for your [iPhone](#) or [Android phone](#).

Procedure and Definition of Terms Recorded or Used in Washington Steer and Beef Carcass of Merit Programs

1. **Initial and Final Live Weight.** Use similar pre-weighing conditions for both initial and final live weights. The initial weight must be taken at least 100 days before the final weight at the show.
2. **Average Daily Gain.** $(\text{Final live weight} - \text{initial live weight}) \div \text{days on test}$.
3. **Hot Carcass Weight.** Carcass weight immediately after slaughter prior to chill. If chilled weights are recorded, convert to hot carcass weight by dividing by 0.98 (most carcasses shrink about 2% during the chilling process).
4. **Dressing Percentage.** $(\text{Hot carcass weight} \div \text{final live weight}) \times 100$.
5. **Adjusted Fat Thickness.** Carcasses are ribbed or divided into front and hindquarters between the 12th and 13th ribs. Fat thickness is measured at the 12th rib at a point three-fourths of the lateral length of the longissimus (ribeye) muscle (measured from the chine bone [backbone] end of the muscle) and perpendicular to the outside surface of the fat. This measurement may be adjusted, as necessary, to reflect any unusual distribution of fat on other parts of the carcass.
6. **Ribeye Area.** The cross-sectioned area of the longissimus (ribeye) muscle at the 12th rib (use a plastic grid to measure). All adjacent secondary muscles are excluded in the measurement.
7. **Kidney, Pelvic, and Heart Fat.** Fat accumulated in the body cavity of the carcass. Its weight is estimated and reported as a percentage of the hot carcass weight.
8. **Yield Grade.** Value determined by a formula using adjusted fat thickness; ribeye area; percentage of kidney, pelvic, and heart fat; and hot carcass weight. A lower yield grade number indicates a higher percentage of salable red meat. The yield grade formula is:

$$\text{Yield grade} = 2.50 + (2.5 \times \text{adjusted fat thickness, in inches}) + (0.20 \times \text{percentage of kidney, pelvic, and heart fat}) + (0.0038 \times \text{hot carcass weight, in pounds}) - (0.32 \times \text{ribeye area, in square inches}).$$

9. **Maturity.** Refers to physiological age. It is determined by evaluating the size, shape, and ossification of the bones and cartilage and the color and texture of the lean meat. The maturity scores are A, B, C, D, and E.
10. **Marbling.** A primary determinant of quality grade. It is evaluated by estimating the fat within the ribeye muscle (intramuscular fat) at the 12th rib. Examples of marbling scores include practically devoid, traces, slight, small, modest, moderate, and slightly abundant.
11. **Quality Grade.** An estimation of the quality or palatability-indicating characteristics of meat. Quality grades are determined by a composite evaluation of carcass maturity and marbling, texture, firmness, and color of the ribeye muscle. It is recommended that a federal grading service employee or experienced grader determine quality grades. If graded by anyone other than a federal grader, make a notation to that effect.

Additional Resources

Information about beef carcass evaluation:

American Meat Science Association. 2013. Meat Evaluation Handbook. <http://www.meatscience.org> or <http://www.lulu.com>

Beef carcass evaluation equipment:

Beef Marbling Photographs. 2007. National Cattlemen's Beef Association. Phone: 800-368-3138. Fax: 303-694-2851. NCBA Store: <https://www.dmsfulfillment.com/NCBA/Secure/Main.aspx>

Beef Ribeye Grids (laminated). Art Design Services Company, 4910 Decatur St, Ste 104, Hyattsville, MD, 20781. Phone 301-982-7304. Fax 301-277-7307.

Boggs, D.L., R.A. Merkel, M.E. Doumit, and K. Bruns. 2010. Livestock and Carcasses: An Integrated Approach to Evaluation, Grading, and Selection, 6th ed. Kendall/Hunt Publishing Company: Dubuque, Iowa.

Romans, J.R., W.J. Costello, C.W. Carlson, M.L. Greaser, and K.W. Jones. 2001. The Meat We Eat, 14th ed. The Interstate Printers and Publishers, Inc.: Danville, Illinois.

Smith, S.M., and J.R. Busboom. 2015. WSU Carcass Calculator: Livestock Carcass Grade & Cutability Calculator (Version 1.0 #30). [Mobile application software]. Free to download from <https://itunes.apple.com/us/app/livestock-carcass-calculator/id1022439322?mt=8> and <https://play.google.com/store/apps/details?id=edu.wsu.meatcalculator>.

USDA Preliminary Cutability Grade Ruler. NASCO, Phone: 800-558-9595, or <https://www.enasco.com/product/C02615HV>



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Revised April 2017.