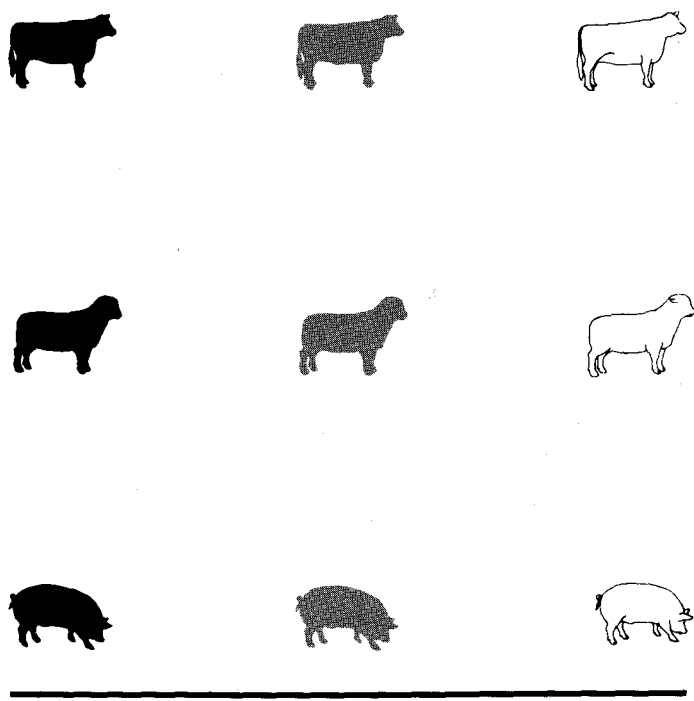


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The Oregon Carcass of Merit Program



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The Carcass of Merit program is an evaluation system developed and conducted by Extension Services in the Pacific Northwest to help identify standards for desirable beef, lamb, and hog carcasses and to recognize the growers and breeders who achieve those standards. Purpose of the program is to:

- Encourage production of quality meat animals that meet consumer desires.
- Develop concern for quality in livestock production.
- Extend producer education through sponsored marketing programs.
- Provide recognition to producers and breeders for high-quality animals.

This publication was prepared for 4-H leaders and livestock club members, but will serve as a guide for others with interest in improving carcass merit. Certificates of Recognition, to be awarded to growers and breeders meeting the standards, are available to sponsors through the 4-H and Youth Development Department, Oregon State University.

This publication was revised by Bill Zollinger, beef specialist; Bradford J. Jeffreys, Extension specialist, 4-H and Youth Development; and Ken Killingsworth, Extension agent, Wheeler County, Oregon State University Extension Service, with the assistance of the 4-H Development Committee for Animal Science Projects. The Carcass of Merit program was initiated by Washington State University Cooperative Extension. This publication is adapted from several Washington Extension publications.

Carcass of Merit (Beef)

Requirements

1. **Hot carcass weight.** 600 pounds to 750 pounds.
2. **Rib eye area.** 1.8 square inches or more per 100 pounds of hot carcass weight, reported to the nearest tenth of an inch.
3. **Fat cover at 12th rib.** 0.15 inch minimum to 0.4 inch maximum.
4. **Final carcass grade.** Low Choice or better.
5. **Yield grade.** 1.5 minimum, 2.9 maximum.
6. **Dark cutters.** Eliminate carcass if quality grade is lowered because of dark cutters.
7. **Bruises.** If bruises are severe and reduce value of carcass, then eliminate from Carcass of Merit.

Procedure for Evaluation

1. **Weight.** It is recommended that live weight be taken at a short interval prior to slaughter. Normally standard weighing conditions necessitate a 12-hour stand with no feed or water.
2. **Rib eye area.** Obtained either by measuring the longissimus dorsi muscle area at the 12th rib face with a loin eye grid or by taking an acetate tracing of the muscle and measuring with a compensatory polar planimeter. All secondary muscles should be excluded from the measurement.
3. **Fat cover at the 12th rib.** Measured perpendicular to the outside surface of the carcass. Measurement taken at a point three-fourths of the length (from backbone end) of the longissimus dorsi muscle.
4. **Maturity, marbling, and kidney, pelvic, and heart fat** should be given by a federal grader or other qualified personnel.
5. **Yield grade.** Calculated using the yield grade formula. Yield grade = 2.50 + (2.50 x adjusted fat thickness, in.) + (.20 x % kidney, pelvic, and heart fat) + (0.0038 x hot carcass weight, lb) - (0.32 x area of rib eye, in.).
6. **Dressing percentage** = $\frac{\text{Hot carcass weight}}{\text{Live weight}} \times 100$

Carcass of Merit (Beef)

Table 1. Preliminary Yield Grade and Corresponding Carcass Fat Thickness.*

Preliminary yield grade	Fat thickness (Inches)	Preliminary yield grade	Fat thickness (Inches)
2.0	.00	3.1	.45
2.1	.05	3.2/3.3	.50
2.2/2.3	.10	3.4	.55
2.4	.15	3.5	.60
2.5	.20	3.6	.65
2.6	.25	3.7/3.8	.70
2.7/2.8	.30	3.9	.75
2.9	.35	4.0	.80
3.0	.40	4.1	.85

* The USDA grader's yield-grade worksheet will not have a column for fat thickness, but will have a column for preliminary yield grade. This preliminary yield grade can be converted to a fat thickness using the above table.

Ranking of Carcasses

All Carcass of Merit animals should be ranked on yield grade from lowest to highest (1.50 to 2.99). Ranking of carcasses that do not meet the above criteria are at the discretion of local groups. Carcasses meeting the standards outline for the Oregon Carcass of Merit should always be ranked before any of those not meeting the standards.

It is recommended that if ranked, other groups be made relative to grade, size, etc., then ranked on yield grade. For example, the second group to be ranked might be the high Select cattle, then the other choice carcasses not meeting the standards of merit. The groupings should be made considering relative prices of the current beef market.

Only carcasses meeting the above requirements should be awarded Oregon's Carcass of Merit distinction.

Carcass of Merit (Lamb)

Requirements

1. **Carcass weight.** Must weigh at least 50 lb but no more than 65 lb.
2. **Fat cover at the 12th rib.** Must be at least 0.10 inch and not more than 0.20 inch.
3. **Leg conformation grade.** Low Prime or better.
4. **Kidney, heart, and pelvic fat.** Must be 2.5 percent or less.
5. **Final carcass grade.** Average Choice or better.
6. **Color, firmness.** Carcasses must have acceptable color and firmness of fat and lean. Those carcasses on which legs and shoulders are devoid of fat will not qualify.

Procedure for Evaluation

1. **Weigh** carcasses individually and record hot weights in ½-pound intervals. If internal fat has been removed, divide hot carcass weight by 0.982 for adjusted hot carcass weight (use 1.8 as KPH).
2. **Work with the federal grader** in the cooler 24 hours after slaughter and record leg conformation grade and final carcass grade. Record these to one-third of the grade (example: high Choice, mid Choice, low Choice, etc.)
3. **Code** the leg conformation grade by the system: high Prime = 15; mid Prime = 14; low Prime = 13; high Choice = 12, etc.
4. **Have the federal grader** estimate the percentage of kidney, heart, and pelvic fat.
5. **Measure** fat thickness with a ruler divided in tenths of inches. Take measurements over both right and left sides between the 12th and 13th ribs at a point approximately 1½ inches from the middle of the backbone. These measurements can be obtained through a small slit made over the center of the loin-eye muscle. Average the two measurements.
6. **Yield grade** should be calculated using the yield grade formula:
Yield grade = $1.66 - (0.5 \times \text{leg conformation grade code}) + (0.25 \times \% \text{ kidney, heart, pelvic fat}) + (6.66 \times \text{fat thickness, in.})$

Carcass of Merit (Lamb)

Ranking of Carcasses

Judging and placing lamb carcasses. Placement of carcasses, if made, should be on the basis of yield grade within the group.

Only these lambs should be awarded a Carcass of Merit distinction.

Further ranking of animals beyond the scope of meritorious carcasses at the discretion of a local steering committee. A group could consider the following:

- A. Carcasses grading at least low Choice which fail to meet the "Oregon Carcass of Merit (Lamb)" standards on one trait.
- B. Carcasses grading at least low Choice which fail in more than one trait.
- C. All carcasses failing to grade at least low Choice may be placed at the discretion of the judge (probably by yield grade).

Carcass of Merit (Swine)

Requirements

(carcasses are broken)

1. **Weight (hot carcass weight).** 160 lb minimum and 180 lb maximum.
2. **Last rib backfat thickness.** 0.6 inches minimum and 1.2 inches maximum. This is one measurement, taken opposite the last rib vertebrae.
3. **Percent muscling.** A minimum of 58% muscling is required to be considered for Carcass of Merit.
4. **Carcasses** exhibiting pale, soft, and watery muscle are disqualified from consideration.

Procedure for Evaluation

1. **Pre-slaughter.** An individual live weight taken to the nearest pound within a 24-hour period, not to exceed either 12 hours before or after the time the hot is shown. The live weight shall be 200 lb or greater.
2. **Carcass measurements.** Length measured to the nearest 0.10 inch and backfat measured to the nearest 0.05 inch.
3. **Muscling scores.** Are to be determined as outlined in the National Pork Producers Council publication *Procedures to Evaluate Market Hog Performance*, 2nd ed.
4. **Slaughter dress style.** Dressing procedure is head-off with carcass split longitudinally down the backbone into two equal halves. In cases where the superior spinous processes are not split evenly, use the side containing the greatest proportion for evaluation purposes.
5. **If chilled weights are recorded,** convert to a hot weight basis by dividing by 0.985 (based on a 24-hour chill, most carcasses shrink about 1.5 percent during the chilling process).
6. **The formula to determine percentage of muscle** from the National Pork Producers Council is:

$$\% \text{ muscle} \left[\frac{12.4 + (0.5 \text{ HCW, lb}) + (3.6 \times \text{muscling score}) + (3.6 \text{ if gilt}) - (\text{last rib backfat, in.} \times 14.0)}{\text{hot carcass weight, lb}} \right] \times 100$$

Ranking of Carcasses

Final carcass ranking will be based on percent muscling and limited to those carcasses meeting the above requirements. Only carcasses of merit should be ranked for final placing. Ranking of other carcasses are at the discretion of the local committees. No other carcass should be placed above a Carcass of Merit.

Pork Color and Texture Standards

Recent research shows that a firm, slightly dark, and moderately marbled pork muscle has a higher processing and cooking yield and is more flavorful, juicy, and tender than soft or pale pork. Pork muscles vary widely in:

- Color—pale grayish white (inferior) to dark red.
- Firmness—extremely soft (inferior) to very firm.
- Structure—open (inferior) to closed.

This makes it imperative to have standards from which we can uniformly evaluate pork muscles.

Further, since certain of these attributes are at least partially heritable, these standards should also be a great aid in the selection of lines of breeding stock which will give an improved pork muscle quality.

Color and structure

Pork muscles are light or dark depending on the amount of pigment or the amount or rate of development of muscle acidity. Pigment increases with age. Acidity depends in part on feeding and treatment. An extremely acid muscle or rapid development of acidity usually results in a light, pale color and soft structure.

The No. 3 products are normal color—grayish pink to slightly red—and are acceptable for processing and cooking. These products represent the ideal pork color and structure.

Firmness

Firmness is generally related to color—darker products are firmer. No. 3, 4, and 5 hams are all firm enough for desirable products. Softer products usually have a lower processing yield and a higher cooking loss. A moderately dark, firm product is usually both juicy and tender.

Table 2. Scores Used to Evaluate Pork Carcasses for Quality.

Score	Color	Structure	Firmness
1	Extremely pale	Watery	Soft
2	Pale	Moderately watery	Moderately soft
3	Grayish pink	Moderately dry	Moderately firm
4	Moderately dark	Dry	Firm
5	Dark	Very dry	Very firm

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