



Cattle Producer's Handbook

Marketing Section

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Beef Carcass Grading and Pricing

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History

In 1924, the U.S. Department of Agriculture (USDA) published a uniform set of standards for grading slaughter beef. Official grading of beef carcasses by USDA began in 1927 on a voluntary basis.

Over the past 70 years, several amendments and changes have been adopted in the grading standards. In 1965, a second grading system was adopted to identify carcasses based on cutability or yield grade. In 1987, the Good grade was changed to Select. In January 1997, changes were made in the quality grades that B maturity carcasses were eligible for (Fig. 1). These changes restricted the Select grade to A maturity only and increased the marbling degree required for Choice, B maturity. Carcass grading is conducted by a USDA grader not a packing plant employee, and carcasses can be quality graded, yield graded, or both.

Quality Grading

Quality grades for beef carcasses are based on two major factors: (1) degree of marbling and (2) degree of maturity. Lean color, texture, and firmness are also considered in determining final quality grade. The quality grades for beef are: USDA Prime, Choice, Select, Standard (young beef only, A and B maturity), Commercial, Utility, Cutter, and Canner (older beef, C-E maturity).

Marbling is the amount and distribution of fat within lean. It is estimated in the loin muscle between the 12th and 13th ribs after cutting and exposure to air for at least 10 minutes (bloom time). Ten degrees of marbling are used in quality grading from lowest to highest: (1) devoid, (2) practically devoid, (3) traces, (4) slight, (5) small, (6) modest, (7) moderate, (8) slightly abundant, (9) moderately abundant, and (10) abundant.

The amount of marbling is used as an indicator of eating quality. Research indicates that marbling score explains only about 10 percent of the variation in tenderness. Marbling, however, is the only measurable carcass trait related to tenderness.

Maturity refers to the physiological age of the animal rather than its chronological age. The five maturity classifications from youngest to oldest are: A, B, C, D, and E, which correspond with the approximate chronological ages of 9-30, 30-42, 42-72, 72-96, and more than 96 months, respectively. The maturity classification is an average of skeletal and lean maturity scores.

Skeletal maturity is evaluated by assessing ossification of cartilage at various carcass locations, shape of ribs, and bone color. Lean maturity is assessed by evaluating lean color. As animals age, cartilage ossifies to bone, the color of lean becomes darker due to accumulation of myoglobin, and muscle texture become coarser.

The determination of the final quality grade is made by using Fig. 2 to identify the quality grade where the marbling degree and maturity score intersect on the chart. In addition, lean color is assessed and dark colored lean (dark cutters) will be reduced by one-third, two-thirds, or a full grade. It is important to note that only youthful beef (A and B maturity) are eligible for USDA Prime, Choice, Select (A only), and Standard grades.

Yield Grading

Yield grades are numerical values between 1 and 5. They are estimates of the cutability of the carcass. Yield grade number corresponds to the yield of boneless, closely trimmed (about .3 inch), retail cuts from the round, loin, rib, and chuck, or the four wholesale cuts. The four wholesale cuts represent over 75 percent of carcass weight but about 90 percent of carcass value.