

## U.S. Standards for Grades of Feeder Cattle

Fred Williams, U.S.D.A.

Changes in our nation's beef cattle breeding herds have resulted in the production of feeder cattle that differ widely in frame size, muscling, body type, and relative ability to gain weight and fatten. Where once our herds were basically descended from three British breeds, we are now dealing with more than 70 different breeds of cattle. This and other changes prompted the U.S. Department of Agriculture to revise the Official United States Standards for Grades of Feeder Cattle.

The standards were designed to describe the various types of feeder cattle now being produced. They are used as a basis for Federal-State livestock market reporting and can be used to provide a common trading language between buyers and sellers. They are a tool for penning cattle at sales where feeder cattle are officially graded and ownership comingled. They provide guidelines for better planning of breeding, management, and marketing programs. The grades are based on evaluating differences in frame size and thickness--two of the most important genetic factors affecting merit (value) in feeder cattle.

Frame size is related to the weight at which, under normal feeding and management practices, an animal will produce a carcass of a given grade. Large frame animals require a longer time in the feedlot to reach a given grade and will weigh more than a small-framed animal would weigh at the same grade. Thickness is related to muscle-to-bone ratio and at a given degree of fatness to carcass yield grade. Thicker muscled animals will have more lean meat. The grades recognize three frame size grades and three thickness grades.

In addition to nine possible combinations (3 frame size, 3 muscle thickness) of feeder grades for thrifty animals, there is an Inferior grade for unthrifty animals. The Inferior grade includes feeder cattle which are unthrifty because of mismanagement, disease, parasitism, or lack of feed. An animal grading Inferior could qualify for a thickness and frame size grade at a later date provided the unthrifty condition is corrected.

"Double-muscled" animals are included in the Inferior grade. Although such animals have a superior amount of muscle, they are graded U.S. Inferior because of their inability to produce carcasses with an acceptable degree of meat quality.

### **What are the Specifications for Each Frame Size?**

**Large Frame (L):** Feeder cattle which have typical minimum qualifications for this grade are thrifty, have large frames, and are tall and long bodied for their age. Steers would not be expected to produce the amount of external (subcutaneous) fat opposite the twelfth rib--usually about .5 inch (1.3 cm)--normally associated with the U.S. Choice grade until their live weight exceeds 1,200 pounds (544 kg). Heifers would not be expected to provide Choice carcasses until their live weight exceeds 1000 lbs. (454 kg).

**Medium Frame (M):** Feeder cattle which possess typical minimum qualifications for this grade are thrifty, have slightly large frames, and are slightly tall and long bodied for their age. Steers would be expected to produce U.S. Choice carcasses (about .5 inch (1.3 cm) fat at twelfth rib) at live weights of 1,000 to 1,200 pounds (454 to 544 kg). Heifers would be expected to produce Choice carcasses at 850 to 1,000 pounds (386 to 454 kg).

**Small Frame (S):** Feeder cattle included in this grade are thrifty, have small frames, and are shorter bodied and not as tall as specified as the minimum for the Medium Frame grade. Steers would be expected to produce U.S. Choice carcass (about .5 inch (1.3 cm) fat) at live weights of less than 1,000 pounds (454 kg). Heifers would be expected to produce Choice carcasses at live weights of less than 850 pounds (386 kg).

### **What are the Specifications for Thickness?**

**Number 1:** Feeder cattle which possess minimum qualifications for this grade usually show a high proportion of beef breeding. They must be thrifty and slightly thick throughout. They are slightly thick and full in the forearm and gaskin, showing a rounded appearance through the back and loin with moderate width between the legs, both front and rear. Cattle show this thickness with a slightly thin covering of fat; however, cattle eligible for this grade may carry varying degrees of fat.

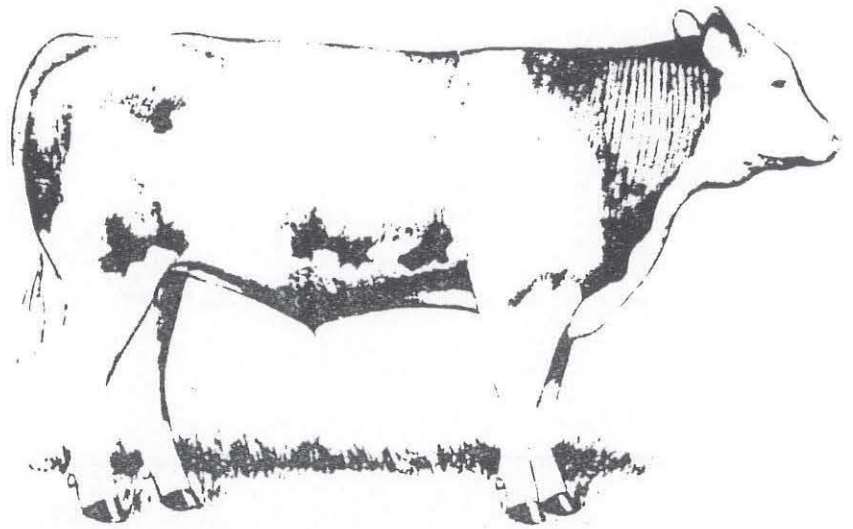
**Number 2:** Feeder cattle which possess minimum qualifications for this grade are thrifty and are narrow through the forequarter and the middle part of the rounds. The forearm and gaskin are thin and the back and loin have a sunken appearance. The legs are set close together, both front and rear. Cattle show this narrowness with a slightly thin covering of fat; however, cattle eligible for this grade may carry varying degrees of fat.

**Number 3:** Feeder cattle include in this grade are thrifty animals which have less thickness than the minimum requirements specified for the No. 2 grade.

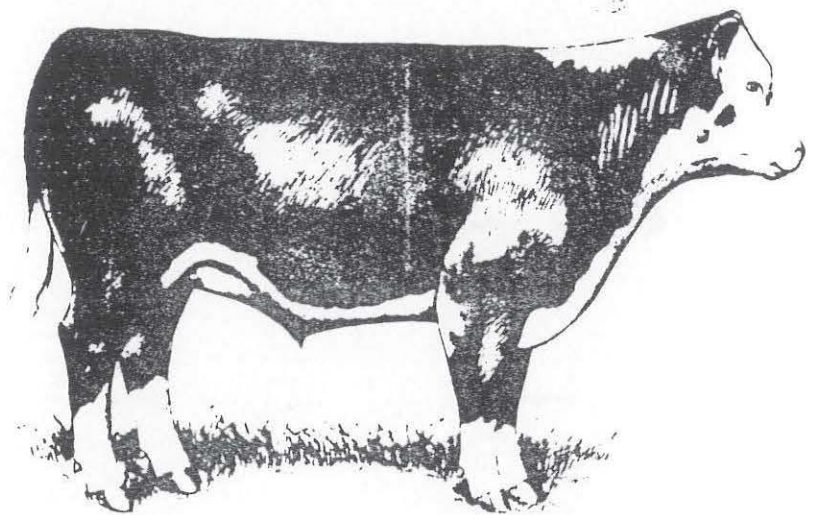
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# Frame Size

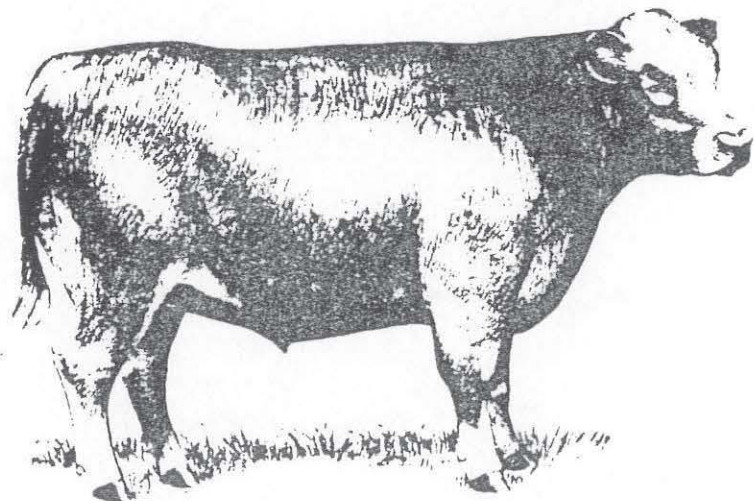
Large



Medium



Small



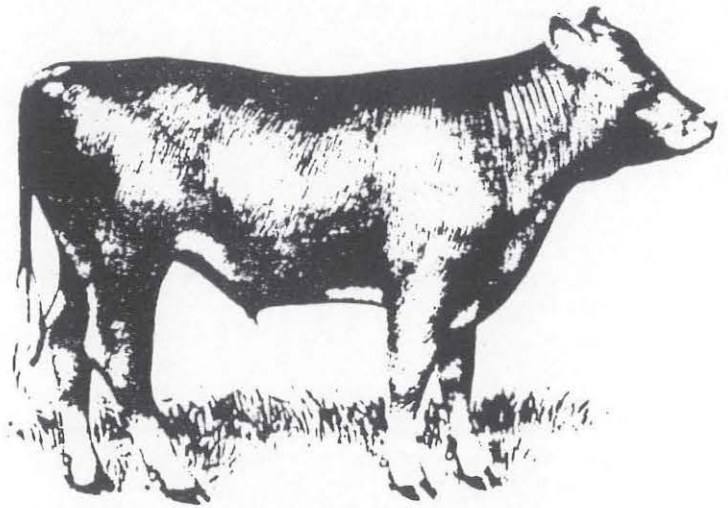
Large and medium frame pictures depict minimum grade requirements. The small frame picture represents an animal typical of the grade.

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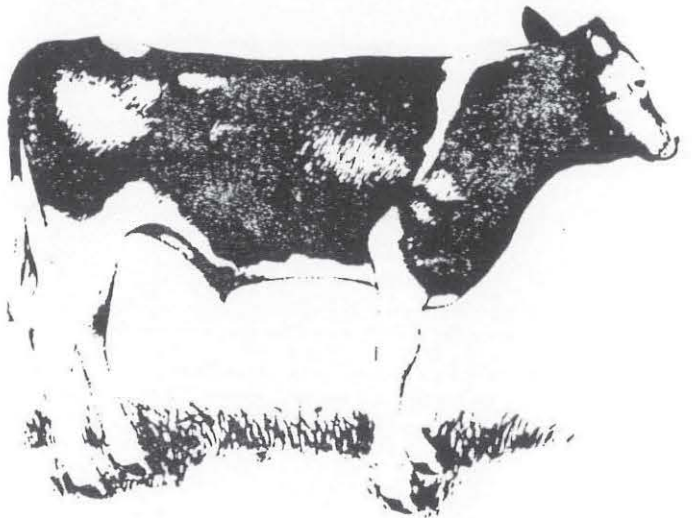
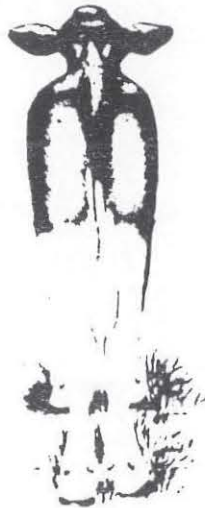
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# Thickness

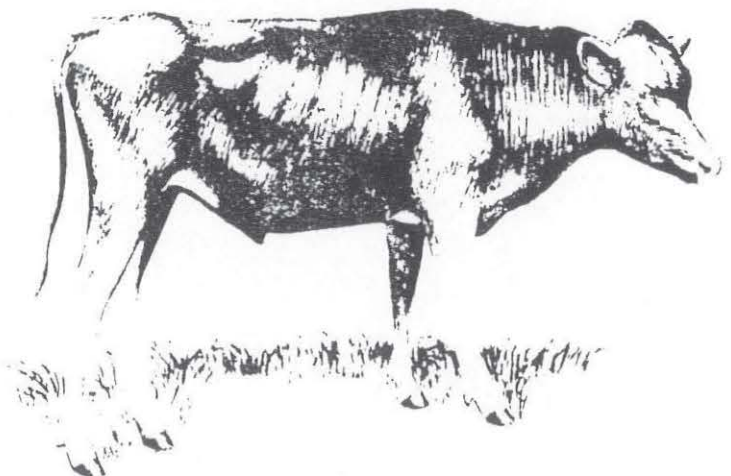
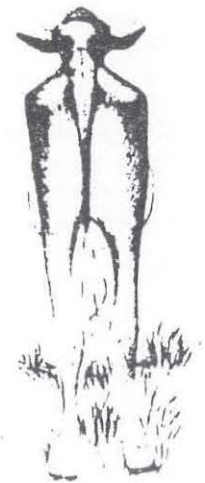
No. 1



No. 2



No. 3



No. 1 and No. 2 thickness pictures depict minimum grade requirements. The No. 3 picture represents an animal typical of the grade.

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## Application of Standards for Grades of Slaughter Cattle

**General:** Grades of slaughter cattle are intended to be directly related to the grades of the carcasses they produce. To accomplish this, these slaughter cattle grade standards are based on factors which are related to the grades of beef carcasses. Eight quality designations-Prime, Choice, Select, Standard, Commercial, Utility, Cutter, and Canner are applicable to steers and heifers. There are five yield grades, which are applicable to all classes of slaughter cattle and are designated by numbers 1 through 5, with Yield Grade 1 representing the highest degree of cutability. The grades of slaughter cattle shall be a combination of both their quality and yield grades, except that slaughter bulls are yield graded only.

**Quality Grades:** Slaughter cattle quality grades are based on an evaluation of factors related to the palatability of the lean, herein referred to as "quality." Quality in slaughter cattle is evaluated primarily by the amount and distribution of finish, the firmness of muscling, and the physical characteristics of the animal associated with maturity. Progressive changes in maturity past 30 months of age and in the amount and distribution of finish and firmness of muscling have opposite effects on quality. Therefore, for cattle over thirty months of age in each grade, the standards require progressive greater development of the other quality-indicating factors. In cattle under 30 months of age, a progressively greater development of the other quality indicating characteristics is not required.

Since carcass indices of quality are not directly evident in slaughter cattle, some other factors in which differences can be noted must be used to evaluate their quality. Therefore, the amount of external finish is included as a major grade factor herein, even though cattle with a specific degree of fatness may have widely varying degrees of quality. Identification of differences in quality among cattle with the same degree of fatness is based on distribution of finish and firmness of muscling. Descriptions of these factors are included in the specifications. For example, cattle which have more fullness of the brisket, flank, twist, and cod or udder and which have firmer muscling than that indicated by any particular degree of fatness are considered to have higher quality than indicated by that degree of fatness.

**Yield Grades:** The yield grades for slaughter cattle are based on the same factors as used in the official yield grade standards for beef carcasses. Those factors and the change in each which is required to make a full yield grade change are as follows:

Factor	Effect of increase on yield grade <sup>1</sup>	Approximate change in each factor required to make a full yield grade change <sup>2</sup>
Thickness of fat over ribeye . . . . .	Decreases	4/10 in.
Percent of kidney, pelvic, and heart . . . . .	do	5%
Carcass weight . . . . .	do	260 lb.
Area of ribeye . . . . .	Increases	3 in. <sup>2</sup>

<sup>1</sup>The yield grades are denoted by numbers 1 through 5 with Yield Grade 1 representing the highest cutability or yield of closely trimmed retail cuts. Thus, an "increase" in cutability means a smaller yield grade number while a "decrease" in cutability means a larger yield grade number.

<sup>2</sup>This assumes no change in the other factors.

When evaluating slaughter cattle for yield grade, each of these factors can be estimated and the yield grade determined by using the equation contained in the official standards for grades or carcass beef. However, a more practical method of appraising slaughter cattle for yield grade is to use only two factors normally considered in evaluating live cattle - muscling and fatness.

In the latter approach to determining yield grade, evaluation of the thickness and fullness of muscling in relation to skeletal size largely accounts for the effects of two of the factors - area of ribeye and carcass weight. By the same token, an appraisal of the degree of external fatness largely accounts for the effects of thickness of fat over the ribeye and the percent of kidney, pelvic, and heart fat.

These fatness and muscling evaluations can best be made simultaneously. This is accomplished by considering the development of the various parts based on an understanding of how each part is affected by variations in muscling and fatness. While muscling of most cattle develops uniformly, fat is normally deposited at a considerably faster rate on some parts than on others. Therefore, muscling can be appraised best by giving primary consideration to the parts least affected by fatness, such as the round and the forearm. Differences in thickness and fullness of these parts - with appropriate adjustments for the

effects of variations in fatness - are the best indicators of the overall degree of muscling in live cattle.

On the other hand, the overall fatness of an animal can be determined best by observing those parts on which fat is deposited at a faster-than-average rate. These include the back, loin, rump, flank, cod or udder, twist, and brisket. As cattle increase in fatness, these parts appear progressively fuller, thicker, and more distended in relation to the thickness and fullness of the other parts, particularly the round. In thinly muscled cattle with a low degree of finish, the width of the back usually will be greater than the width through the center of the round. The back on either side of the backbone also will be flat or slightly sunken. Conversely, in thickly muscled cattle with a similar degree of finish, the thickness through the rounds will be greater than through the back and the back will appear full and rounded. At an intermediate degree of fatness, cattle which are thickly muscled will be about the same width through the round and the back will appear only slightly rounded. Thinly muscled cattle with an intermediate degree of finish will be considerably wider through the back than through the round and will be nearly flat across the back. Very fat cattle will be wider through the back than through the round, but this difference will be greater in thinly muscled cattle than in those that are thickly muscled. Such cattle with thin muscling also will have a distinct break from the back into the sides, while those with thick muscling will be nearly flat on top, but will have a less distinct break into the sides. As cattle increase in fatness, they also become deeper bodied because of larger deposits of fat in the flanks and brisket along the underline. Fullness of the twist and cod or udder and the bulge of the flanks, best observed when an animal walks, are other indications of fatness.

In determining yield grade, variations in fatness are much more important than variations in muscling.

**Other Considerations:** Other factors such as heredity and management also may affect the development of the grade-determining characteristics in slaughter cattle. Although these factors do not lend themselves to description in the standards, the use of factual information of this nature is justifiable in determining the grade of slaughter cattle.