



## Feeder Calf Grading Fundamentals

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Feeder grades offer more consistent communication between the producer and other segments of the beef industry including the stocker / backgrounders and feedlots. Feeder grades also give producers target production goals and a realistic view of the general acceptance of the product that is being marketed. The terminology of the feeder cattle market chain can be vague and challenging to understand for the novice and even experienced cattlemen. The reason being is that it is rarely explained and the message is not often conveyed clearly or consistently. Beef producers are often skeptical as to why their cattle or individual calves have sold for less money than others. Understanding feeder cattle grading standards will help the beef cattle producer more clearly understand the value differences among cattle types. Many variables equate to calf value. Feeder cattle value determining factors include:

Table 1:

### **Feeder Cattle Value Determining Factors**

- |                                      |                        |
|--------------------------------------|------------------------|
| ✓ Frame                              | ✓ Weight               |
| ✓ Muscling                           | ✓ Color                |
| ✓ Sex Classification (Steer, Heifer) | ✓ Fill                 |
| ✓ Flesh                              | ✓ Vaccinations         |
| ✓ Breed                              | ✓ Horns                |
| ✓ Background                         | ✓ Personal Preferences |

Many of the factors listed are obvious at first glance. However, frame and muscling, in particular, are predictive variables as to how the calf will perform and grade once harvested at the packing plant. In other words, lightweight feeder cattle can be assigned grades and scores to assess potential carcass value. These grades typically coincide with live animal performance and value. This bulletin will only address thriftiness, frame, muscling, flesh, and sex.



The three calves pictured were born the same day. Although they are the same number of days old, the number of days on feed will range as much as 100 days or more to achieve a similar carcass endpoint. If the potential weight gain is negligible for the next segment of the industry, less profit potential exist. Conversely, if the animal must be fed to an endpoint out of industry acceptability to achieve ideal carcass merit, potential buyers will also discriminate. Thus, a frame score can help communicate the potential value differences that exist between each calf for the buyer and seller.

### **Thriftiness**

Feeder cattle must be deemed thrifty in order to receive frame and muscle scores. Thrifty is a term used to describe cattle that can grow and develop normally according to beef industry expectations for growth and marbling. Unthrifty cattle are either unhealthy or genetically unfit for optimum growth and development of marbling. Examples of unthrifty cattle are those with double muscling, severe emaciation, or a leg injury that would prevent proper weight gain. Neither example would fit the USDA frame score standards. Cattle that are determined to be unthrifty are graded U.S. Inferior. If a calf completely recovers from a disease or injury they can be graded at that time.

### **Frame Score**

The USDA feeder cattle frame scores are small, medium, and large and are noted as S, M or L in conjunction with it's muscle score. Larger frame cattle have a higher rate of gain, require more time on feed, and will attain a heavier slaughter weight. Depending upon feed prices and cattle supply, the demand for larger frame cattle can vary slightly, but typically, upper medium to lower large framed cattle have reaped the highest prices compared to lower medium and



smaller framed cattle. The key to understanding how frame-scoring works is to understand what frame scores ultimately predict. Frame scores predict the potential weight range of a given steer or heifer when they have reached their compositional endpoint of around 0.5 inches of external fat and potentially grade low choice or higher if genetics allow.

Table 2:

### **Frame Score as a Predictor of Final Harvest Weight**

	<u>Steer (lbs.)</u>	<u>Heifer (lbs.)</u>
Large	1250 or >	1150 or >
Medium	1100 to 1249	1000 to 1149
Small	< 1100	<1000

Figure 1:

## **Feeder Cattle**

### **Official U.S. Grades**

#### **Frame Size**



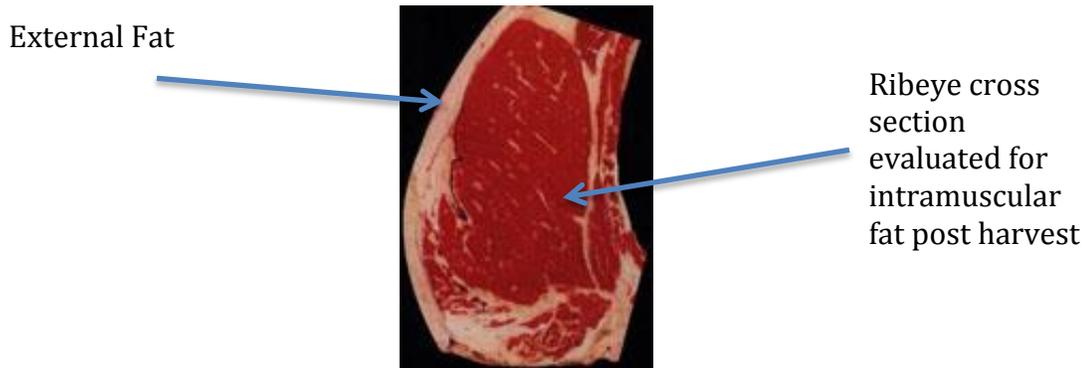
Large and medium frame pictures depict minimum grade requirements. The small frame picture represents an animal typical of the grade.

Source: [www.ams.usda.gov](http://www.ams.usda.gov)

Large framed cattle are those that are expected to weigh over 1250lbs. when their external fat is approximately 0.5 inches. at the 12<sup>th</sup> rib where beef carcasses are “ribbed” for grading purposes. The 0.5-inch target is used in the USDA standards as a reasonable live animal predictor for a calf’s ability to grade choice or higher.

Figure 2:

USDA Photographic Standard for Low Choice Marbling



Cattle buyers that are looking at 500 lb. feeder calves are evaluating the growth indicators that help predict final endpoint weight. Buyers and graders use a combination of the criteria in Table 2. For example, a 500 lbs. feeder with a long coarse tail, large head, and wide muzzle relative to other cattle indicate that the calf is smaller framed and will have less genetic ability for gain. A long bodied, short tailed, fine haired calf weighing 500 lbs. should have more gain potential and ultimately have a higher yielding carcass with less trimmable waste. Generally, large framed cattle have lower quality grades compared to smaller framed cattle, which drives the need for genetic selection for marbling. Quality grades have improved dramatically due to selection. Backgrounders, stocker operators and feedlots all have the potential to profit from potential gains of larger framed versus smaller framed cattle. Small-framed cattle will generally receive much lower prices throughout the beef chain; have lower yielding carcasses with more trimmable fat.

Table 3:

Frame Size – Relative to Maturity

- ✓ Length of Tail
- ✓ Coarseness
- ✓ Width of Muzzle
- ✓ Coarseness of Hair on Poll



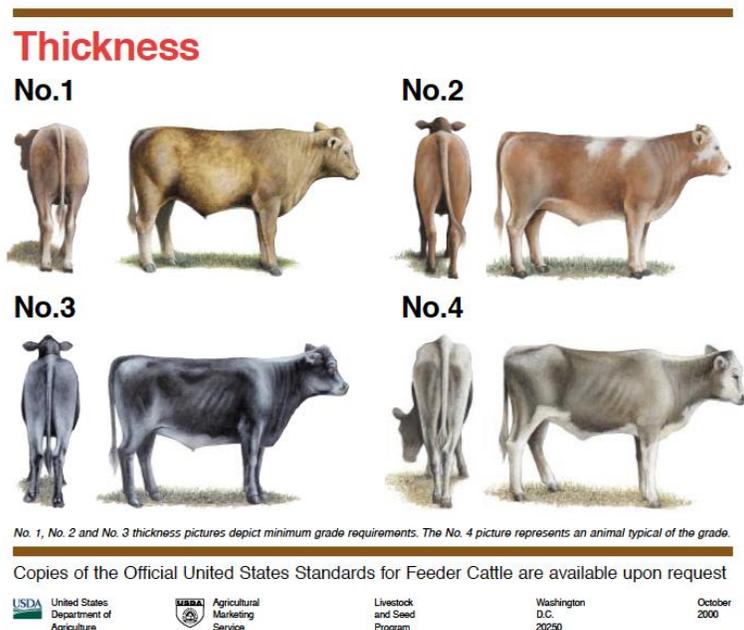
✓ Size of Feet, Ears, and Head

## **Muscle Scoring**

USDA feeder cattle muscle scores are either 1, 2, 3, or 4 based on subjective assessment of a trained grader or used as common terminology amongst buyers and sellers with a lower number indicating more muscling and generally considered to garner more value. Feeder cattle with a muscle score of 1 are highly marketable cattle that are expected to have a larger ribeye, less fat and consequently a more desirable yield grade.

Figure 3:

### USDA Feeder Cattle Muscling Scores



Source: [www.ams.usda.gov](http://www.ams.usda.gov)

Muscle thickness refers to the development of the muscle system. A muscle score (MS) 1 is described as moderately thick and comprised predominately of beef breeding. A MS 2 is described as slightly thick and with high proportion of beef breeding. A MS 3 is described as thin throughout with the legs close together. The MS 4 score was added with the year 2000 standards revision. An MS 4 is described as having less thickness than a MS 3. Cattle receiving a MS 3 or 4 would have a dairy type appearance. A MS 4 is not common.

Figure 4: Jorgenson Muscling Theory



Muscle has a rounded shape when in abundance (Figure 4: MS 1). The Jorgenson's Muscling Theory is a good way to help visualize the ideal muscling of a MS 1 or upper MS 2. Cattle receiving a MS 1 or upper MS 2 more optimally meet industry standards for yield grade. Yield grades are utilized to group carcasses according to the amount of boneless, closely trimmed retail cuts. Light muscled cattle have the appearance of an inverted triangle upon a rear view (Figure 4: MS 3 & 4). Cattle with less muscling in the hip and quarter will typically yield a smaller ribeye and deposit fat more quickly. This will drive the yield grade (YG) higher toward a YG 4 or 5 when fed to a similar fat thickness. Cattle with excessive flesh will appear to have a less rounded shape due to the fat deposits that develop in the upper hip and lower quarter.

Figure 5: Jorgenson's Muscling Theory Excessive Flesh



## **Flesh**

Flesh score (FS) will also dictate feeder cattle value. However, they are not a part of the grade standards as they can change over time and are more dependent on nutritional environment. Fleishy cattle within a given frame and



muscle score will typically have lower sale price. These cattle are heavier than ideal at a given weight with less opportunity for additional gain in the next phase of the beef chain. The Jorgenson's Muscling Theory (Figure 5) further displays the visual effect of additional fat deposition on feeder cattle for both heavy and light muscled cattle. USDA Feeder Cattle Standards do have a scale for flesh that ranges from 1-9. Neither excessively thin (FS 1, 2) or fleshy cattle (FS 6-9) are ideal from a marketing perspective. Flesh score should be a consideration for producers that are considering creep feeding. Low performing cattle may become too fleshy negating any additional weight gain due to creep feeding (See UGA Publication B1315 Creep Feeding Beef Calves)

### **Sex Classification**

Before grades can be assessed a discussion of differences among sex classes is necessary. Male cattle tend to grow and stay leaner for a longer period of time considering all other factors are equal. This explains that steers and bulls bring a premium verses heifers. It should also be noted that steers (castrated male) will bring a premium compared to bulls (intact male) if all other variable are constant. This is dependent upon the particular market and relative to current market conditions. Steers bring a premium verses bulls as they are more suited to the commercial beef chain. Feeder bulls will have to be castrated before entering the feedlot segment. Castration prior to being marketed has long-term benefits for the calves health and performance. Research confirms that bulls will have diminished gains and increased sickness due to the stress of castration (Massey et al., 2011). Stocker operators may choose to purchase feeder bulls. They are assuming the risk and capturing the value of marketing healthy feeder steers at heavier weight. Table 2 shows the differences that exist between sex classifications as of June of 2015 with consistent weight and feeder grade.

Table 4:

<b><u>Differences Among Feeder Cattle Sex Classifications</u></b>		
<b><u>Feeder Sex Class</u></b>	<b><u>Weight (LBS.)</u></b>	<b><u>Price Per Hundred</u></b>
Heifer (Med & Lrg 1)	500-550	235.00-245.00
Bull (Med & Lrg 1)	500-550	250.00-260.00
Steer (Med & Lrg 1)	500-550	260.00-270.00

### **Summary**

Feeder cattle buyers, marketers, and producers are able to more fully communicate the potential growth and carcass merit attributes of individual and grouped calves under 36 months of age using the USDA Feeder Cattle Grading Standards. Producers that are more acutely aware of the feeder grade standards can target their individual production goals toward higher premiums while avoiding mating's and management practices that would be discriminated



against by buyers. For more information on feeder cattle grading, contact your local Extension Office (1-800-ASK-UGA-1).

References:

L. Stewart, Creep Feeding Beef Calves, UGA Extension Bulletin 1315, Reviewed March 2013

United States Standards for Grades of Feeder Cattle Revised October 1, 2000., United States Department of Agriculture

USDA Market News: [www.ams.usda.gov](http://www.ams.usda.gov)

Massey, C., K. C. Dhuyvetter, R. V. Llewelyn, and D. A. Blasi 2011. Castration and morbidity and their effects on performance, carcass quality, and price differentials for bulls and steers. *Prof. Anim. Sci.* 27:19–28.