Grading Market Steers

(Script for the Grading Market Steers Presentation)

Slide 1: Grading market steers is process that involves estimating the Yield Grade and the Quality Grade. Estimating the Yield Grade involves an evaluation of muscling and leanness, and estimating the Quality Grade involves an evaluation of traits that influence the degree of marbling, or intramuscular fat. This presentation will provide an overview of the steps involved in estimating both the Yield Grade and the Quality Grade for market steers.

Slide 2: Let's first take a look at estimating the Yield Grade of market steers.

Slide 3: A yield grade represents the amount of boneless, closely trimmed, retail cuts of beef taken from the Round, Loin, Rib, and Chuck wholesale cuts of a market steer. Another name for Yield Grade that is often used is "Cutability".

Slide 4: There are five (5) Yield Grades for market steers: #1, #2, #3, #4, and #5. A #1 Yield Grade market steer will be extremely lean and heavy muscled. A #2 Yield Grade market steer will be lean and muscular, but not as extreme as a #1 Yield Grade. Market steers that possess average muscling with some finish will be classified as #3 Yield Grade. Fat and light muscled market steers will fall into the #4 Yield Grade category. And #5 Yield Grade market steers will be very fat with only minimal muscling. Yield Grades #2 and #3 are most preferred by the beef industry.

Slide 5: There are three (3) factors that have a major influence on the Yield Grade for a market steer. These include 12^{th} rib fat thickness, rib eye area, and percentage of kidney, pelvic, and heart fat. A three (3) step process is used to evaluate these three (3) factors when estimating the Yield Grade for a market steer.

Slide 6: The first, and most important, step in calculating a Yield Grade is to estimate 12^{th} rib fat thickness and establish a Preliminary Yield Grade. The second step is to estimate the rib eye area for the market steer and to compare it to the expected (or standard) rib eye area for steers of its weight, and to adjust the Preliminary Yield Grade for muscling. The third and final step is to estimate the percentage of kidney, pelvic, and heart fat, and adjust the Preliminary Yield Grade for kidney, pelvic, and heart fat to arrive at a Final Yield Grade. Each of these steps will be considered in more detail in the next several slides.

Slide 7: Let's first take a closer look at estimating 12^{th} rib fat and establishing a Preliminary Yield Grade.

Slide 8: An accurate estimate of 12^{th} rib fat is the most critical factor in arriving at an accurate Final Yield Grade estimate. When evaluating 12^{th} rib fat for a market steer, several areas should be considered, including depth of body, depth of the rear flank

in relation to depth of the fore flank, indentions (or lack of indentions) behind the shoulder, amount of finish over the ribs, fullness or amount of fat in the brisket, the presence or absence of fat around the tailhead, and the amount of fat in the cod. When evaluating fat, it's important to remember that the order of fat deposition in cattle is from front to back and from top to bottom.

Slide 9: This picture shows a steer that is fairly lean. This market steer has very little fat cover over its ribs, and shows indentations behind its shoulder. It is very tight and trim along its underline with its rear flank being shallower than its fore flank. This steer also has a very trim brisket with almost no fat being present around its tailhead. Taken together, these indicators suggest this steer has about 0.2 inch 12th rib fat.

Slide 10: Here is an example of a market steer that has substantial fat cover. Fat steers will appear smooth over their top and indentions will not be present over and behind the shoulder. Fat steers will also be uniformly deep from front to rear and will be loose underneath. Fat cattle will exhibit a full cod, a full brisket, and will have pones of fat around the tailhead. Based on the fat indicators, this market steer has approximately 0.8 inch 12th rib fat.

Slide 11: The estimate of 12th rib fat for a market steer determines the Preliminary Yield Grade that will be assigned to the steer. Different levels of 12th rib fat correspond to a set Preliminary Yield Grade that will be given to the steer. Again, an accurate estimation of 12th rib fat, and the subsequent establishment of the Preliminary Yield Grade, is the most critical step in achieving an accurate Final Yield Grade for a market steer.

Slide 12: This chart shows the Preliminary Yield Grades that correspond to different levels of 12th rib fat thickness. For example, the lean steer with 0.2 inch 12th rib fat that was previously shown would be assigned a Preliminary Yield Grade of 2.50. The fat steer with 0.8 inch 12th rib fat would be assigned a Preliminary Yield Grade of 4.00. An easy way to remember this chart is to consider 0.4 inch 12th rib fat as the standard. This corresponds to a Preliminary Yield Grade of 3.00. For every 0.1 inch the 12th rib fat estimate for a market steer is below this standard, the Preliminary Yield Grade would be adjusted downward by a factor of 0.25. For every 0.1 inch the 12th rib fat estimate for a market steer is above this standard, the Preliminary Yield Grade would be adjusted upward by a factor of 0.25.

Slide 13: Now that we've gone over estimating 12th rib fat and establishing a Preliminary Yield Grade, let's look at a few market steers and see how you're progressing. What is the 12th rib fat thickness and Preliminary Yield Grade for this steer? *(PAUSE)*

The fat indicators show that this steer is extremely lean. The estimated 12th rib fat is about 0.1 inch, which corresponds to a 2.25 Preliminary Yield Grade.

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Slide 14: What is the 12th rib fat thickness and Preliminary Yield Grade for this steer? *(PAUSE)*

The indicators for this steer show he has a little fat, but is still fairly lean. The estimated 12th rib fat for this steer is about 0.3 inch, which corresponds to a 2.75 Preliminary Yield Grade.

Slide 15: What is the 12th rib fat thickness and Preliminary Yield Grade for this steer? *(PAUSE)*

This steer is starting to show some finish. The estimated 12th rib fat for this steer is about 0.6 inch, which corresponds to a 3.50 Preliminary Yield Grade.

Slide 16: What is the 12th rib fat thickness and Preliminary Yield Grade for this steer? *(PAUSE)*

This steer is showing several indications of a fairly high degree of finish. The estimated 12th rib fat for this steer is about 0.8 inch, which corresponds to a 4.00 Preliminary Yield Grade.

Slide 17: Once 12th rib fat has been estimated and the Preliminary Yield Grade has been set, the second step in estimating Yield Grade for market steers is to evaluate rib eye area and adjust the Preliminary Yield Grade for muscling.

Slide 18: The Preliminary Yield Grade that is determined from 12th rib fat is adjusted based on the degree of muscling a market steer possesses when compared to the muscling that is expected for steers of a given weight. Rib eye area is the muscling indicator that is used to make adjustments to the Preliminary Yield Grade. The estimated rib eye area for the steer is compared to the expected, or standard, rib eye area for steers of that weight, and the Preliminary Yield Grade is adjusted up or down as needed.

Slide 19: The best view for evaluating muscling is a rear view, and the evaluation should begin at the ground and proceed upward. Heavy muscled steers will be as wide between their feet, when walking or standing, as they are through the top of their rump, giving the appearance of a rectangular shape. They will be even wider through the center of their quarter or stifle region than they are between their feet or over their top. Light muscled steers will walk and stand close at their feet and will have a sharp, roof-shaped top, giving the appearance of a triangle when viewed from the rear. Light muscled steers will also be flat and narrow though their quarter. Remember, heavy muscled steers will be wide based and wide topped with a rectangular shape when viewed from the rear, and light muscled steers will be narrow based and wide topped with a triangular shape when viewed from the rear.

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Slide 20: This table shows the standard, or expected, rib eye area for market steers of various weights. As one would expect, the standard rib eye area increases as heavier weights are achieved. There are several key points to keep in mind concerning the standard rib eye area. First, the expected rib eye area increases 0.3 in^2 for every 25 pound increase in carcass weight. Stated another way, the expected rib eye area increases 0.1 in^2 for every 8 pound increase in carcass weight. Second, carcass weight is calculated by multiplying the live weight of the market steer by the standard dressing percentage of 62%.

Slide 21: The third and fourth key points to remember relate to how the Preliminary Yield Grade is adjusted based on rib eye area. For each 1.0 in^2 the estimated rib eye area for a steer is below the standard rib eye area, 0.3 is added to the Preliminary Yield Grade, resulting in a less desirable Preliminary Yield Grade. For each 1.0 in^2 the estimated rib eye area for a steer is above the standard rib eye area, 0.3 is subtracted from the Preliminary Yield Grade, resulting in a more desirable Preliminary Yield Grade. If the estimated rib eye area for a steer is approximately the same as the standard rib eye area, no adjustment would be made to the Preliminary Yield Grade.

Slide 22: Let's look at an example of how to use this table to adjust Preliminary Yield Grade based on estimated rib eye area. For this example we have a market steer with a live weight of 1,250 pounds. Multiplying the live weight by the standard dressing percentage of 62% shows this steer would have a carcass weight of 775 pounds. From the table we see that the standard rib eye area for a 775 pound market steer is 13.1 in^2. Let's assume that we estimate this steer actually has a rib eye area of 12 in^2. The estimated rib eye area is approximately 1 in^2 below the standard, so 0.3 would be added to the Preliminary Yield Grade.

Slide 23: Let's look at another example using this same steer. Again, this market steer has a live weight of 1,250 pounds, a calculated carcass weight of 775 pounds, and the standard rib eye area is 13.1 in^2. But in this case let's assume that we estimate this steer actually has a rib eye area of 14 in^2. The estimated rib eye area is approximately 1 in^2 above the standard, so 0.3 would be subtracted from the Preliminary Yield Grade.

Slide 24: Let's now look at a couple of actual steers and estimate their rib eye area and determine the appropriate adjustments to make to the Preliminary Yield Grade. This black steer weighs 1,350 pounds, which translates to a calculated carcass weight of 837 pounds. Using the reference table, the standard rib eye area for this weight of market steer is 13.8 in^2. An evaluation of this steer reveals that he is narrow based, has a sharp, roof-shaped top, and is flat and narrow through its quarter. The triangular shape that is common to light muscled market steers is evident from the rear view of this steer. These muscling indicators suggest this steer has a rib eye area of about 11 in^2, which is approximately 3 in^2 less than the standard rib eye area. For this steer, 0.9 would be added to the Preliminary Yield Grade.

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Slide 25: This grey steer has a live weight of 1,300 pounds and a calculated carcass weight of 806 pounds. The standard rib eye area for this weight steer is 13.4 in^2. The rear view of this steers shows that he is wide based, wide topped, and very thick through the stifle area of the quarter. The desirable rectangular shape of heavily muscled market steers is easily seen on this steer. These muscling indicators would suggest this steer has a rib eye area of about 16 in^2, which is approximately 3 in^2 above the standard rib eye area. The Preliminary Yield Grade would be adjusted downward by a factor of 0.9.

Slide 26: After Preliminary Yield Grade has been adjusted for muscling, the last step in arriving at a final Yield Grade is to evaluate percentage kidney, pelvic, and heart fat and adjust Preliminary Yield Grade based on percentage kidney, pelvic, and heart fat.

Slide 27: Kidney, pelvic, and heart fat is the internal fat associated with the kidney, pelvic, and heart, and the weight of this fat is expressed as a percentage of the chilled carcass weight. Adjusting Preliminary Yield Grade for percentage kidney, pelvic, and heart fat is a fairly easy task due to the fact that percentage kidney, pelvic, and heart fat has a direct correlation with 12^{th} rib fat. In other words, the level of 12^{th} rib fat that is estimated for a market steer corresponds to a set adjustment to Preliminary Yield Grade for percentage kidney, pelvic, and heart fat.

Slide 28: This table shows the adjustments to Preliminary Yield Grade for percentage kidney, pelvic, and heart fat based on different estimated levels of 12^{th} rib fat. For example, if a steer was estimated to have 0.2 inch 12^{th} rib fat, Preliminary Yield Grade would be adjusted downward by 0.4 to account for percentage kidney, pelvic, and heart fat. A key point for this reference table is that the Yield Grade formula assumes a base 12^{th} rib fat of 0.9 inch, which corresponds to 3.5% kidney, pelvic, and heart fat. If a market steer has 12^{th} rib fat below this standard, Preliminary Yield Grade is adjusted downward by the appropriate amount shown in the table column labeled %KPH Adjustment. If a market steer has 12^{th} rib fat above this standard, Preliminary Yield Grade is adjusted upward by the appropriate amount shown in the table column labeled %KPH Adjustment. The value determined after Preliminary Yield Grade has been adjusted for percentage kidney, pelvic, and heart fat represents the final Yield Grade for the market steer.

Slide 29: A summary of the steps involved in determining Yield Grade for market steps is as follows: Step 1, estimate the 12^{th} rib fat for steer which in turn establishes the Preliminary Yield Grade. This is the most critical step in ensuring you arrive at an accurate final Yield Grade. Step 2, compare estimated rib eye area for the market steer to the expected rib eye area for steers of that weight and adjust Preliminary Yield Grade for muscling. And Step 3, use 12^{th} rib fat to estimate percentage kidney, pelvic, and heart fat, and adjust Preliminary Yield Grade for percentage kidney, pelvic, and heart fat to arrive at a final Yield Grade. It's important to

remember that determining Yield Grade in market steers is not an exact procedure. Rather, determining Yield Grade is a process that involves estimating several factors. However, with practice you can become proficient in Yield Grading market steers.

Slide 30: With this basic knowledge of determining Yield Grade of market steers, let's look at some steers and test your ability to estimate Yield Grade. Remember to follow the three step procedure for determining Yield Grade.

Slide 31: Estimate the Yield Grade for this 950 pound black market steer. *(PAUSE)*

The first step in determining Yield Grade involves estimating 12^{th} rib fat. This steer appears to be fairly lean. Shoulder indentions are quite evident, it is clean and trim over its ribs, has a shallow rear flank, and is trim in its underline. Based on these fat indicators this steer is estimated to have 0.3 inch 12^{th} rib fat. This level of 12^{th} rib fat corresponds to a Preliminary Yield Grade of 2.75. The second step is to estimate rib eye area. The calculated carcass weight for this steer is 589 pounds, and the standard rib eye area for steers of this weight is 10.8 in^2. This steer is fairly wide based and wide topped, with good thickness through the center of the quarter. Based on these muscling indicators, this steer is above average in muscling and is estimated to have 13 in^2 of rib eye area. The estimated rib eye area is approximately 2 in^2 above the standard rib eye area, so 0.6 should be subtracted from the Preliminary Yield Grade. Making this adjustment for muscling results in a Preliminary Yield Grade of 2.15. The final step is to adjust the Preliminary Yield Grade for percentage kidney, pelvic, and heart fat. The estimated 12^{th} rib fat of 0.3 inch corresponds to a 0.3 reduction in the Preliminary Yield Grade. Making this adjustment for percentage kidney, pelvic, and heart fat results in a final Yield Grade of 1.85 for this black market steer.

Slide 32: Estimate the Yield Grade for this 1,050 pound market steer. *(PAUSE)*

This steers shows some finish but is not excessively fat. The fat indicators for this steer suggest he has about 0.6 inch 12^{th} rib fat, which corresponds to a Preliminary Yield Grade of 3.50. The calculated carcass weight for this steer is 651 pounds, and the standard rib eye area for steers of this weight is 11.6 in^2. The muscling indicators show this steer is about average in muscling, and is estimated to have 11.5 in^2 of rib eye area. Since the estimated rib eye area is about the same as the standard rib eye area, no adjustment for muscling is made to the Preliminary Yield Grade, so it remains at 3.50. The estimated 12^{th} rib fat of 0.6 inch corresponds to a 0.2 reduction in the Preliminary Yield Grade for percentage kidney, pelvic, and heart fat. Making this adjustment results in a final Yield Grade of 3.30 for this market steer.

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Slide 33: Estimate the Yield Grade for this 1,250 pound market steer. *(PAUSE)*

The fat indicators for this steer suggest fairly lean with about 0.3 inch 12th rib fat. This corresponds to a Preliminary Yield Grade of 2.75. The calculated carcass weight for this steer is 775 pounds, and the standard rib eye area for steers of this weight is 13.1 in^2. The muscling indicators show this steer is fairly thick and little above average in muscling, and is estimated to have 14 in^2 of rib eye area. The estimated rib eye area is approximately 1 in^2 above the standard rib eye area, so 0.3 should be subtracted from the Preliminary Yield Grade. Making this adjustment for muscling results in a Preliminary Yield Grade of 2.45. . The estimated 12th rib fat of 0.3 inch corresponds to a 0.3 reduction in the Preliminary Yield Grade for percentage kidney, pelvic, and heart fat. Making this adjustment results in a final Yield Grade of 2.15 for this market steer.

Slide 34: Estimate the Yield Grade for this 1,250 pound market steer. *(PAUSE)*

This steer is fairly average in terms of finish and is estimated to have 0.4 inch 12th rib fat. This corresponds to a Preliminary Yield Grade of 3.00. The calculated carcass weight for this steer is 775 pounds, and the standard rib eye area for steers of this weight is 13.1 in^2. The muscling indicators show this steer is above average in muscle thickness, and is estimated to have 14 in^2 of rib eye area. The estimated rib eye area is approximately 1 in^2 above the standard rib eye area, which results in a 0.3 reduction in Preliminary Yield Grade. Once the muscling adjustment is made we have a Preliminary Yield Grade of 2.70. The estimated 12th rib fat of 0.4 inch corresponds to a 0.3 reduction in the Preliminary Yield Grade for percentage kidney, pelvic, and heart fat. Making this adjustment results in a final Yield Grade of 2.40 for this market steer.

Slide 35: Estimate the Yield Grade for this 1,300 pound market steer. *(PAUSE)*

All of the fat indicators for this steer show that he is very lean and trim. The 12th rib fat for this steer is estimated to be 0.2 inch, which corresponds to a Preliminary Yield Grade of 2.50. The calculated carcass weight for this steer is 806 pounds, and the standard rib eye area for steers of this weight is 13.4 in^2. The muscling indicators show this steer is average in muscling, and is estimated to have 13 in^2 of rib eye area. The estimated rib eye area is approximately 0.5 in^2 below the standard rib eye area, so 0.15 should be added to the Preliminary Yield Grade. Making this adjustment for muscling results in a Preliminary Yield Grade of 2.65. The estimated 12th rib fat of 0.2 inch corresponds to a 0.4 reduction in the Preliminary Yield Grade for percentage kidney, pelvic, and heart fat. Making this adjustment results in a final Yield Grade of 2.25 for this market steer.

Slide 36: Estimate the Yield Grade for this 1,250 pound market steer. *(PAUSE)*

This steer is fairly average in terms of finish and is estimated to have 0.4 inch 12th rib fat. This corresponds to a Preliminary Yield Grade of 3.00. The calculated carcass weight for this steer is 775 pounds, and the standard rib eye area for steers of

this weight is 13.1 in^2. The muscling indicators show this steer is slightly below average in muscling, and is estimated to have 12 in^2 of rib eye area. The estimated rib eye area is approximately 1 in^2 below the standard rib eye area, so 0.3 should be added to the Preliminary Yield Grade. Making this adjustment for muscling results in a Preliminary Yield Grade of 3.30. The estimated 12^{th} rib fat of 0.4 inch corresponds to a 0.3 reduction in the Preliminary Yield Grade for percentage kidney, pelvic, and heart fat. Making this adjustment results in a final Yield Grade of 3.00 for this market steer.

Slide 37: Estimate the Yield Grade for this 1,300 pound market steer. *(PAUSE)*

The fat indicators for this steer show that he has some finish. The estimated 12^{th} rib fat for this steer is 0.6 inch, which corresponds to a Preliminary Yield Grade of 3.50. The calculated carcass weight for this steer is 806 pounds, and the standard rib eye area for steers of this weight is 13.4 in^2. This steer is fairly thick and muscular, and is estimated to have 15 in^2 of rib eye area. The estimated rib eye area is approximately 1.5 in^2 above the standard rib eye area, so 0.45 should be subtracted from the Preliminary Yield Grade. Making this adjustment for muscling results in a Preliminary Yield Grade of 3.05. The estimated 12^{th} rib fat of 0.6 inch corresponds to a 0.2 reduction in the Preliminary Yield Grade for percentage kidney, pelvic, and heart fat. Making this adjustment results in a final Yield Grade of 2.85 for this market steer.

Slide 38: Estimate the Yield Grade for this 1,250 pound market steer. *(PAUSE)*

This steer is very lean and trim, and is estimated to have 0.2 inch 12^{th} rib fat. This corresponds to a Preliminary Yield Grade of 2.50. The calculated carcass weight for this steer is 775 pounds, and the standard rib eye area for steers of this weight is 13.1 in^2. The muscling indicators show this steer is average in muscling, and is estimated to have 13 in^2 of rib eye area. Since the estimated rib eye area is about the same as the standard rib eye area, no adjustment for muscling is made to the Preliminary Yield Grade, so it remains at 2.50. The estimated 12^{th} rib fat of 0.2 inch corresponds to a 0.4 reduction in the Preliminary Yield Grade for percentage kidney, pelvic, and heart fat. Making this adjustment results in a final Yield Grade of 2.10 for this market steer.

Slide 39: Estimate the Yield Grade for this 1,350 pound market steer. *(PAUSE)*

The fat indicators for this steer show that he has a fairly high degree of finish. The estimated 12^{th} rib fat for this steer is 0.8 inch, which corresponds to a Preliminary Yield Grade of 4.00. The calculated carcass weight for this steer is 837 pounds, and the standard rib eye area for steers of this weight is 13.8 in^2. The muscling is fairly average for steers of this weight, and this market steer is estimated to have 14 in^2 of rib eye area. Since the estimated rib eye area is about the same as the standard rib eye area, no adjustment for muscling is made to the Preliminary Yield Grade, so it remains at 4.00. The estimated 12^{th} rib fat of 0.8 inch corresponds to a 0.1 reduction in the Preliminary Yield Grade for percentage kidney, pelvic, and heart

fat. Making this adjustment results in a final Yield Grade of 3.90 for this market steer.

Slide 40: Estimate the Yield Grade for this 1,300 pound market steer. *(PAUSE)*

This steer is extremely raw with very little finish. The estimated 12th rib fat for this steer is 0.1 inch, which corresponds to a Preliminary Yield Grade of 2.25. The calculated carcass weight for this steer is 806 pounds, and the standard rib eye area for steers of this weight is 13.4 in^2. This steer is very thick and muscular, and is estimated to have 16 in^2 of rib eye area. The estimated rib eye area is approximately 2.5 in^2 above the standard rib eye area, so 0.75 should be subtracted from the Preliminary Yield Grade. Making this adjustment for muscling results in a Preliminary Yield Grade of 1.50. The estimated 12th rib fat of 0.1 inch corresponds to a 0.4 reduction in the Preliminary Yield Grade for percentage kidney, pelvic, and heart fat. Making this adjustment results in a final Yield Grade of 1.10 for this market steer.

Slide 41: Estimate the Yield Grade for this 1,700 pound market steer. *(PAUSE)*

This large framed Holstein steer has some finish and is estimated to have 0.5 inch 12th rib fat. This corresponds to a Preliminary Yield Grade of 3.25. The calculated carcass weight for this steer is 1,054 pounds, and the standard rib eye area for steers of this weight is 16.4 in^2. The muscling indicators show this steer is very light muscled, and is estimated to have 11 in^2 of rib eye area. The estimated rib eye area is approximately 5.5 in^2 below the standard rib eye area, so 1.65 should be added to the Preliminary Yield Grade. Making this adjustment for muscling results in a Preliminary Yield Grade of 4.90. The estimated 12th rib fat of 0.5 inch corresponds to a 0.2 reduction in the Preliminary Yield Grade for percentage kidney, pelvic, and heart fat. Making this adjustment results in a final Yield Grade of 4.70 for this market steer.

Slide 42: Estimate the Yield Grade for this 1,350 pound market steer. *(PAUSE)*

The fat indicators for this steer show a substantial amount of finish is present. The estimated 12th rib fat for this steer is 0.9 inch, and corresponds to a Preliminary Yield Grade of 4.25. The calculated carcass weight for this steer is 837 pounds, and the standard rib eye area for steers of this weight is 13.8 in^2. This steer is very narrow and light muscled when viewed from the rear, and is estimated to have 10 in^2 of rib eye area. The estimated rib eye area is approximately 4 in^2 below the standard rib eye area, so 1.20 should be added to the Preliminary Yield Grade, resulting in a Preliminary Yield Grade of 5.45. The estimated 12th rib fat of 0.9 inch corresponds to no adjustment in the Preliminary Yield Grade for percentage kidney, pelvic, and heart fat, which results in a final Yield Grade of 5.45 for this market steer.

Slide 43: With these basic guidelines, Yield Grade can be accurately estimated for market steers. Just as a reminder, estimating the Yield Grade involves an evaluation of

muscling and leanness, and the Yield Grade estimate represents the amount of boneless, closely trimmed, retail cuts of beef taken from the Round, Loin, Rib, and Chuck wholesale cuts. The Yield Grade does not give any indication of the quality of the meat that will be taken from the beef carcass. An estimate that will provide an approximation of the quality of the beef is the Quality Grade. Let's take a look at what a Quality Grade is and how it can be estimated.

Slide 44: A Quality Grade is a measure of the eating quality of beef. In other words, will the beef be good and enjoyable to eat. The Quality Grade is based primarily on the amount of marbling that the rib eye is estimated to contain.

Slide 45: Marbling is the flecks of fat that are contained within the muscle. Another name marbling is "intramuscular fat". Marbling is important because it helps keep the meat tender and juicy and gives it some flavor.

Slide 46: There are four (4) Quality Grades for market steers: Prime, Choice, Select, and Standard. The amount of marbling contained within the muscle determines which Quality Grade will be assigned to the animal. The Prime Quality Grade requires a slightly abundant to moderately abundant degree of marbling. It takes an almost excessive amount of finish for a market steer to achieve this degree of marbling. The Choice Quality Grade will have a Small, Modest, or Moderate degree of marbling, and market steers in this Quality Grade will have some finish. Market steers with a Quality Grade of Select are usually under-finished, and will have a Slight degree of marbling. The Standard Quality Grade will only have Traces of marbling, and will typically have very little exterior fat cover.

Slide 47: Here are shown illustrations of the amounts of intramuscular fat for each of the degrees of marbling that are found in the various Quality Grades. As you can see, as you go from the Prime Quality Grade down to the Select Quality Grade the amount of intramuscular fat, or the degree of marbling decreases. Not shown is the Standard Quality Grade, which is practically devoid of fat within the muscle.

Slide 48: Unfortunately, the degree of marbling cannot be measured directly when estimating the Quality Grade for a live market steer. Because of this, other factors that influence marbling must be evaluated. Two factors to consider that have an influence on a market steer's ability to marble are the amount of external fat and the genetic makeup of the steer.

Slide 49: The amount of external fat cover provides a good indication of the degree of marbling a market steer possesses. When evaluating external fat cover, it's important to remember that fat is progressively deposited from front to back and from top to bottom. In other words, a steer will deposit fat over its shoulder before it deposits fat over its ribs around its tailhead, and it will deposit fat over its top

before it deposits fat along its underline and in its brisket and cod. An accurate estimation of 12th rib fat, with special attention given to the amount of fat around the tailhead and in the brisket and cod, will provide a good indication of the degree of marbling that is present.

Slide 50: Evaluating external fat to estimate Quality Grade involves the same considerations that were discussed in the section on determining Yield Grade. As a review, one should consider if indentations are present at the shoulder, the amount of fat cover over the ribs, the smoothness over the top, the depth of the rear flank in relation to the depth of the fore flank, the trimness underneath, the amount of fat in the cod, the amount of fat in brisket, and the amount of fat around the tailhead.

Slide 51: Tailhead fat can be a very good tool to use in estimating Quality Grade. As a steer finishes, pones of fat will become more evident around the tailhead. This picture shows a steer with very little fat around the tailhead. This would be fairly typical of steer with about 0.2 in 12th rib fat and a Low Select Quality Grade. This picture is an example of steer with close to 0.4 inch 12th rib fat and a High Select Quality Grade. Pones of fat are evident around the tailhead of this steer. This amount of tailhead fat is indicative of a steer with about 0.8 inch 12th rib fat, and one with a Quality Grade of Low Choice. This picture shows a steer with substantial fat deposits its tailhead. Steers with this amount of tailhead fat will have approximately 0.9 inch 12th rib fat, and will Quality Grade either High Choice or Prime.

Slide 52: The amount of fat in the brisket is also a good tool to use in estimating Quality Grade. The brisket will gradually get wider and deeper as the steer finishes and it fills with fat. This brisket is very trim and typical of what would be found on a steer with close to 0.2 inch 12th rib fat. Steers with this level of fat would generally fall into the Select or Standard Quality Grade. Here you are starting to see some fat being deposited in the brisket. Steers with this amount of brisket fat will have close to 0.4 inch 12th rib fat, and will be a Select Quality Grade. The brisket on this steer is starting to fill with fat, and is fairly typical of steers with around 0.6 inch 12th rib fat and a Low Choice Quality Grade. Here is shown a steer with a very wide and full brisket. This steer has approximately 0.8 inch 12th rib fat, and would be a High Choice or Prime Quality Grade.

Slide 53: In addition to the amount of external fat, the breed composition of the market steer should be considered when estimating Quality Grade. Specific breeds of cattle are grouped into broad categories based on their ability to marble. This table will show the cattle breeds that fit into these various broad categories. The English category includes the Angus, Shorthorn, and Hereford breeds. The Exotic category includes the Simmental, Maine Anjou, Limousin, Chianina, and Charolais breeds. The Brahman category consists of the Brangus, Santa Gertrudis, and Beefmaster breeds. And, the Dairy category includes the Holstein, Jersey, Guernsey, and Brown Swiss

breeds.

Slide 54: This table shows estimates of a breed's potential Quality Grade based on its genetic ability to marble relative to the level of 12th rib fat. For example, an English breed steer with 0.4 inch 12th rib fat should have the marbling necessary for a High Select Quality Grade, and an English breed steer with 0.7 inch 12th rib fat should have the marbling necessary for a High Choice Quality Grade. A Brahman breed steer with 0.6 inch 12th rib fat should have the marbling necessary for a Low Choice Quality Grade, and an English by Brahman crossbred steer with 0.5 inch 12th rib fat should have the marbling necessary for a Select Quality Grade. Assuming 12th rib fat can be accurately estimated, this table can be a useful tool for determining a market steer's Quality Grade potential.

Slide 55: Now that we've covered the basics of estimating Quality Grade, let's look at the steers we evaluated for Yield Grade and test your ability to Quality Grade market steers.

Slide 56: Estimate the Quality Grade for this Angus by Limousin crossbred steer that weighs 950 lbs and has an estimated rib eye area of 13 in^2. *(PAUSE)*

Shoulder indentions are very evident on this steer, it has little fat cover over its ribs, and is very shallow in its rear flank. This steer has a little fat in its brisket, but doesn't appear to have any fat deposition around its tailhead. These fat indicators would suggest this steer has close to 0.3 inch 12th rib fat, which would place this English by Exotic steer as a Low Select Quality Grade.

Slide 57: Estimate the Quality Grade for this English by Exotic crossbred steer that weighs 1,050 lbs and has an estimated rib eye area of 12.5 in^2. *(PAUSE)*

The shoulder on this steer is fairly smooth with few indentions evident. This steer also shows some fat cover over its ribs, and is fairly uniform in body depth. The brisket shows a good amount of fat deposition, and some pones of fat are visible around the tailhead. Based on these fat indicators, this steer is estimated to have about 0.6 inch 12th rib fat, which places this English by Exotic steer in the Choice Quality Grade.

Grading Market Steers

(Script for the Grading Market Steers Presentation)

Slide 58: Estimate the Quality Grade for this Exotic Limousin by Charolais crossbred steer that weighs 1,250 lbs and has an estimated rib eye area of 14 in^2. *(PAUSE)*

This Exotic steer is big and trim with indentations visible over and behind the shoulder. He is clean over his ribs and shallower in his rear flank than he is in his fore flank. The brisket is very trim and no fat is visible around the tailhead. The 12^{th} rib fat for this steer is estimated to be 0.3 inch, and this level of fat on an Exotic steer places it in the Low Select Quality Grade.

Slide 59: Estimate the Quality Grade for this English by Exotic crossbred steer that weighs 1,250 lbs and has an estimated rib eye area of 14 in^2. *(PAUSE)*

This black steer has some shape over its shoulder, is fairly clean over its ribs, and is slightly shallower in his rear flank compared to his fore flank. The brisket shows some fat has been deposited, but no fat has been deposited around the tailhead suggesting this steer in not yet completely finished. The 12^{th} rib fat for this steer is estimated to be 0.4 inch, and this level of fat on an Angus by Limousin crossbred steer places it in the Select Quality Grade.

Slide 60: Estimate the Quality Grade for this Charolais by Simmental crossbred steer that weighs 1,300 lbs and has an estimated rib eye area of 13 in^2. *(PAUSE)*

This yellow steer is in need of much more finish. It shows little if any fat cover over its shoulder and ribs and is very cut up in its rear flank. Also, there is no indication of fat in either the brisket or the tailhead. The estimated 12^{th} rib fat for this steer is 0.2 inch, which places this Exotic steer in the Standard Quality Grade.

Slide 61: Estimate the Quality Grade for this Exotic by English crossbred steer that weighs 1,250 lbs and has an estimated rib eye area of 12 in^2. *(PAUSE)*

This chocolate-colored steer is starting to show some signs of finish over the top. It is showing a little fat over its shoulder and ribs, but is slightly shallower in its rear flank compared to his fore flank. However, only a small amount of fat is evident in the brisket and around the tailhead, suggesting this steer in not yet completely finished. The 12^{th} rib fat for this steer is estimated to be 0.4 inch, and this level of fat for a Simmental by Angus steer places it in the Select Quality Grade.

Slide 62: Estimate the Quality Grade for this Exotic Simmental by Charolais crossbred steer that weighs 1,300 lbs and has an estimated rib eye area of 15 in^2. *(PAUSE)*

This yellow baldy steer is showing signs that it is near finishing. He is smooth over his shoulders, has fat cover over his ribs, and shows uniform body depth. The brisket on this steer shows signs of filling and fat pones are evident around the tailhead. This Exotic steer is estimated to have about 0.6 inch 12^{th} rib fat, which equates to a Low Choice Quality Grade.

Grading Market Steers

(Script for the Grading Market Steers Presentation)

Slide 63: Estimate the Quality Grade for this Angus by Limousin crossbred steer that weighs 1,250 lbs and has an estimated rib eye area of 13 in^2. *(PAUSE)*

This black steer has very little finish. All of the fat indicators, including the behind shoulder, the ribs, the rear flank, the brisket, and the tailhead tell us he is under-finished. The estimated 12^{th} rib fat for this steer is 0.2 inch, which places this English x Exotic steer in the Standard Quality Grade.

Slide 64: Estimate the Quality Grade for this Charolais by Red Angus crossbred steer that weighs 1,350 lbs and has an estimated rib eye area of 14 in^2. *(PAUSE)*

All outward signs show that this yellow steer is finished. He is smooth over his shoulders, has fat cover over his ribs, has uniform body depth, and has substantial fat deposits in the brisket and around the tailhead. The estimated 12^{th} rib fat for this Exotic by English steer is approximately 0.8 inch, which places it in the High Choice Quality Grade.

Slide 65: Estimate the Quality Grade for this Limousin steer that weighs 1,300 lbs and has an estimated rib eye area of 16 in^2. *(PAUSE)*

This red Limousin steer is almost fat free. Indentations behind the shoulder are very evident on this steer, it is extremely raw over its ribs, and is very shallow in its rear flank. The brisket on this steer is very trim and there is no fat present around its tailhead. These fat indicators would suggest this steer has as little as 0.1 inch 12^{th} rib fat, which would place this Exotic steer in the Standard Quality Grade.

Slide 66: Estimate the Quality Grade for this Holstein steer that weighs 1,700 lbs and has an estimated rib eye area of 11 in^2. *(PAUSE)*

Dairy breeds marble very well and this huge Holstein steer is showing signs of finishing. He is fairly smooth behind his shoulders, has some fat cover over his ribs, and is only slightly shallower in his rear flank compared to his fore flank. He has a little bit of fat in brisket, and shows some fat around the tailhead. This Dairy steer is estimated to have about 0.5 inch 12^{th} rib fat, which equates to a Choice Quality Grade.

Slide 67: Estimate the Quality Grade for this Santa Gertrudis by Holstein crossbred steer that weighs 1,350 lbs and has an estimated rib eye area of 10 in^2. *(PAUSE)*

This black steer is light muscled and fat. He is very smooth behind his shoulders, has lots of fat cover over his ribs, and his rear flank is deep and full. In addition, the brisket on this steer is deep and full, and pones of fat around the tailhead are very pronounced. The estimated 12^{th} rib fat for this Exotic by Dairy steer is approximately 0.9 inch, which places it in the High Choice or Prime Quality Grade.

Grading Market Steers

(Script for the Grading Market Steers Presentation)

Slide 68: Now that we've covered the necessary steps for estimating both the Yield Grade and the Quality Grade, here are a couple of tips to keep in mind when you grade market steers. First, be especially careful when you estimate 12th rib fat. The estimate of 12th rib fat serves as the basis for the Yield Grade and Quality Grade estimates, and it is the most critical factor in arriving at an accurate final Yield Grade and Quality Grade. And second, don't get hung up on the math. Remember that you are dealing with a series of estimations, not precise calculations, to arrive at your determination of a final Yield Grade and Quality Grade.

Slide 69: You are now equipped with the basics of estimating the Yield Grade and Quality Grade of market steers. You will gain confidence and proficiency in grading market steers as you put these skills into practice. Good luck as you begin applying market steer grading skills.