Your hard work, preparation, and superior genetics are about to pay off. The first round of SPC calves head to the packing plant the first week of April. The steers will be harvested at Car-gill Meat Solutions in Schuyler, Nebraska. This first group of steers will have only been in the feedyard for 150 days! That is terrific.

The second group will be going in late April and will still be on a very impressive feedyard timeline. We look forward to updating you on the carcass performance of your steers, however, there are some details to remember.

The second group will be going in late April and will still be on a very impressive feedyard timeline.

We look forward to updating you on the carcass performance of your steers, however, there are some details to remember.

We will be keeping some information unknown until the AJSA National Classic. The final results of the 2018 SPC will be announced at that time.

This makes it necessary to limit your availability to some information until that time.

Please make sure you are current on your monthly reports and continue to be throughout the SPC.

Remember, for you to get your calf’s ranking you have to have turned in all monthly reports (you can miss only one) and have to be current on your expenses.

One change from last year, to make things as streamlined as possible, ASA will be handling the payout for your steers.

Your individual checks will be held until all steers are harvested and all accounts are current. Should you have any questions at all just let us know.

Again, your calves continue to impress, and people are taking notice. Congratulations, beef producers!
Beef Carcass Grading and Evaluation

Editor’s Note: This article was originally written by David R. Jones & William C. Stringer for the University of Missouri Extension.

Evaluation of beef quality and composition is important to cattle producers, meat packers and retailers, and consumers. Consumers desire cuts of beef that are lean, nutritious, and possess desirable eating characteristics.

Meat researchers have developed reliable methods for measuring the factors that influence eating characteristics and factors affecting yield of lean cuts. Using these evaluation techniques, producers and packers can produce and sell carcasses that meet consumer demand. Beef carcass grading is divided into quality grading and yield grading.

Quality Grading

Quality grades indicate the factors related to the sensory characteristics of tenderness, flavor, color, texture and juiciness.

The quality grade is intended to reflect the cooked product’s overall acceptability. The USDA quality grades for steer and heifer carcasses are prime, choice, select, standard. These grades are determined by balancing maturity and degree of marbling.

Maturity refers to the physiological age of the live animal. There are five USDA maturity grades, A through E (youngest to oldest). Maturity in the carcass is determined by the degree of ossification (bone development) of the split chine bones (back bones) and the color and texture of the cut lean surface. Cartilage changes into bone as the animal matures.

This process of ossification proceeds from the back toward the front portion of the vertebral column. The degree of ossification in the vertebral buttons near the thorax, which is the cavity containing heart, lungs, etc., is the most useful in evaluating maturity. Rib bones also become flatter and whiter as the animal matures.

Meat from young animals is lighter colored and finer textured compared to older beef.

Generally, a fine-textured lean will be more tender than a coarse textured lean. Carcass maturity is closely related to beef tenderness. As the animal matures, changes in the connective tissue cause the meat to be less tender.

Dark-cutting beef is not necessarily from older animals but can also result from cattle that were physiologically stressed before slaughter. Dark-cutting beef is highly discriminated against by consumers and retailers and may be reduced up to one full quality grade.

Marbling is fat within the muscle and is evaluated in the rib eye between the 12th and 13th ribs.

There are nine USDA degrees of marbling for A-maturity carcasses. The quality grades for A-maturity carcasses and their corresponding degrees of marbling (from most to least) are:

Prime: abundant, moderately abundant, and slightly abundant; Choice: moderate, modest, and small; Select: slight; Standard: traces and practically devoid. Marbling has a strong correlation with the juiciness and flavor of beef.

Final quality grades are arrived at by a composite evaluation of maturity and marbling.

Yield Grades

Yield grades estimate the quantity or the amount of closely trimmed boneless retail cuts from the loin, round, chuck and rib. There are five USDA yield grades, 1 through 5. Yield grade 1 carcasses have the highest yield of retail cuts and yield grade 5, the lowest.

The USDA yield grade is based on four factors: hot carcass weight (pounds), ribeye area at the 12th rib (square inches), adjusted fat thickness over the ribeye at the 12th rib (inches), percent kidney, pelvic, and heart (KPH; percent of carcass weight).

These measurements are used in the official USDA formula as follows:

\[
\text{Yield grade} = 2.5 + \left(2.50 \times \text{adjusted fat thickness, inches}\right) + \left(0.2 \times \text{percent KPH}\right) + \left(0.0038 \times \text{hot carcass weight, pounds}\right) - \left(0.32 \times \text{ribeye area, square inches}\right)
\]

When computing yield grades, any decimal is dropped; yield grades are presented as whole numbers.

Care and accuracy of these measurements are essential to derive reliable estimates of the cutability. The USDA grader in a packing plant estimates the factors and uses a short-cut formula.

Fat Thickness

The amount of fat on a beef carcass has the greatest effect on the percent retail yield. As the percent fat increases, the percent muscle decreases. Fat thickness is measured at a point three-fourths of the length of the ribeye (longissimus) muscle from the chine bone at the 12th rib. This measurement may be adjusted according to the total amount of fat on the carcass.

RibEye Area

Total square inches of ribeye is used to estimate muscular development of a beef carcass. This measurement can be taken objectively between the 12th and 13th rib. A calibrated transparent plastic grid placed over the ribeye is commonly used to determine the area.

Hot Carcass Weight

Hot carcass weight is the weight of the carcass after slaughter. The carcass weight has an inverse effect on the percent retail yield.

Kidney, Pelvic, and Heart Fat

The amount of kidney, pelvic and heart fat is fat accumulated in the body cavity of the carcass. The weight is reported as a percent of the carcass weight. The range of kidney, pelvic and heart fat is 1 to 8 percent (with a typical average of 3.5 percent). Yield grades estimate the proportions of lean and fat.

Meat graders determine yield grades with fast, simple visual appraisals of fat.
Beef Carcass Grading and Evaluation Continued...

Fat thickness, hot carcass weight and ribeye area are objective measures with kidney, pelvic and heart fat being a subjective measure. USDA grading is done on a voluntary basis by the packer. The packer absorbs the cost.

When a carcass is submitted for grading, it must be both quality and yield graded. USDA grades should not be confused with the USDA inspection for wholesomeness.

**Summary**

The purpose of beef carcass evaluation is to assist beef producers in producing high-quality beef carcasses, producing high-yielding beef carcasses, identifying superior lines of breeding stock, and promoting a desirable, marketable product.

Improving the efficiency of beef cattle production is important to feeders, cow/calf ranchers and seed stock producers.

Feeders can evaluate their feeding and management practices with cutability scores or the percentage or number of their cattle grading choice.

Cow/calf ranchers may use grades to rank or performance test their stock. Seedstock producers can ultimately use quality and yield grades in sire evaluation.

<table>
<thead>
<tr>
<th></th>
<th>Hot Carcass Wt</th>
<th>KPH</th>
<th>Ribeye Area</th>
<th>Fat Thickness</th>
<th>Yield Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carcass A</td>
<td>830</td>
<td>3</td>
<td>14.2</td>
<td>.60</td>
<td>3</td>
</tr>
<tr>
<td>Carcass B</td>
<td>830</td>
<td>3</td>
<td>14.9</td>
<td>.45</td>
<td>2</td>
</tr>
</tbody>
</table>

Yield Grade Example: Two carcasses with the same hot carcass weight and KPH fat with different ribeye area and fat thickness.

SPC Speaker Spotlight

*Darrell Busby*

Darrell Busby is a Kansas native with a B.S. and M.S. in Animal Science from Kansas State University. From July 1980 to January 2010, he worked as the Iowa State University Extension Livestock/Bee Specialist for SW Iowa.

From February 2010 to June 2017, Busby was manager of the Tri-County Steer Carcass Futurity (TCSCF), which is a service cooperative started in 1982 by Pottawattamie, Cass and Shelby County Cattlemen’s Associations to improve profits for beef producers.

In the last 15 years, TCSCF has collected growth and carcass data on 103,171 head of retained ownership of cattle from 28 states and Manitoba.

Cow-calf producers have used the information from TCSCF to produce healthier, faster gaining, calmer, higher quality cattle that are more profitable.

Busby has assisted livestock producers in evaluating new technologies to improve profitability.

Busby conducted applied research and demonstrations such as factors affecting the percent Choice and percent CAB in feedlot cattle, feedlot health, cattle disposition, comparison of cattle finishing facilities, impact of cattle health on beef quality and tenderness, selenium for grazing beef cattle, waxy corn for feedlot cattle, implant strategies for feedlot and stocker cattle, heat stress in feedlot cattle, effect of MGA on performance, sexual behavior, carcass quality and tenderness in mixed-sex pens of cattle, estrus synchronization and fly control for beef cows.

Two of his most recent awards are the induction into the Iowa Cattlemen’s Hall of Fame in 2013 and the TCSCF Cooperative being named the CAB Progressive Partner of the Year in 2009.