



User's Guide to USDA's Boxed Beef Cutouts

January 2023

The boxed beef cutout represents the estimated gross value of a beef carcass based on prices paid for individual beef items derived from the carcass. AMS calculates two daily cutout values – Choice and Select. The cutout values are published on the National Daily Boxed Beef Cutout and Boxed Beef Cuts - Negotiated Sales reports twice per weekday. The morning report [LM XB402](#), released at 11 a.m. Central, covers market activity from 1:30 p.m. of the prior business day through 9:30 a.m. of the current business day. The afternoon report [LM XB403](#), released at 3 p.m. Central, is cumulative and includes all market activity from the morning report plus any transactions between 9:30 a.m. and 1:30 p.m. Historical data is available on USDA's [DataMart](#) website.

Reported sales of individual beef items meet the following criteria:

- All boxed beef transactions are original sales from firms regulated by Livestock Mandatory Reporting (LMR) to first time buyers. The threshold for LMR is firms slaughtering an average of 125,000 head of cattle per year.
- Sales are negotiated, with the product delivering within 0-21 calendar days to the domestic market.
- Prices are quoted in U.S. dollars per hundred pounds (cwt).
- Beef cut items are from non-dairybred steer and heifer beef and are referenced according to the Institutional Meat Purchase Specifications (IMPS) when possible. Cut items are no older than 14 days from the date of manufacture and are limited to the USDA Choice and Select grades. Branded product is excluded.
- Ground beef and beef trimmings are from both dairybred and non-dairybred steer/heifer beef and are no older than 7 days from the time of manufacture.
- Sale prices of all beef items are quoted on an F.O.B. plant basis (delivered price minus freight cost).

Costs for fabricating carcasses into individual beef items are not deducted from the cutout values. Additionally, the cutout values do not include packer revenues from the sale of hide and offal products removed during slaughter – AMS estimates this value on the [NW_LS441](#) report. By-products, also known as credit items, are created during slaughter. Credit items vary in type and quantity, as they are an outcome of the sub-primal style being produced. Trimmings, bone and fat are examples of credit items.

The cutout reports are used by the cattle and beef industry in various ways. For example, some use the reports as a price barometer for trade negotiations with other parties, while other segments of the industry use the reports as an impartial starting point to base formula and contract agreements, and the CME Group utilizes the cutout values in calculating its Boxed Beef Index. As packers and producers continue to look for ways to contract cattle, many look to the cutout to provide a pricing basis. Therefore, the role of the beef cutout may become even more essential to the industry as time goes on.

Background Information

When beef carcasses first enter the fabrication portion of the plant, they are broken into primal units, such as the rib, chuck, round, loin, brisket, short plate and flank. Next, they are moved to cutting lines, where they are fabricated into various sub-primals.

The potential value of each sub-primal varies based on how much work is involved to produce the cut, along with other similar factors. Ideally, processors produce cuts to fill existing orders; however, when that is not possible, they produce styles with regular demand and place them in cold storage for future sales. This lends to larger quantities of these styles being traded, and consequently, they have more impact on the processor's overall cutout value. The processor's overall cutout is determined by the relationship between the value and the volume of sub-primal styles being produced and sold. The processor looks at their overall cutout as an indication of their company and plant performance.

Comparing the Choice and Select cutout values can provide insight into the current market. The spread between the two values is an indicator of the relative supply for each grade. The daily change in the cutout values is a representative display of the marketplace, while the magnitude of the change in either direction signals some measure of imbalance in supply and demand. The total reported load count also provides insight into the market situation, especially when compared to the daily changes in the cutout.

If the movement of boxed beef cuts is larger than normal—

- With lower trending cutout values, a large movement could indicate that sellers are moving their prices lower to get their supplies under control.
- With higher trending cutout values, it could indicate that buyers are eager to fill their needs while price increases are still workable.

If the movement of boxed beef is smaller than normal—

- With higher trending cutout values, this could indicate resistance in the marketplace to higher asking prices.
- It could also be an indication of an inability to move product at the retail level, possibly due to higher consumer prices.

Another part of the cutout which provides valuable information is the reported primal values. It is from these values that the cutouts are calculated. So, if you want to know what is driving the value of a particular cutout, look at the primal values.

How does it work?

The boxed beef cutout calculations begin with determining a current 2-day weighted average price for each beef item. The current prices from the individual item section of the report are combined with the prices from the previous day to create the 2-day weighted average price for each item. The 2-day weighted average prices, along with industry cutting yields, are used to calculate sub-primal style values, which are then calculated into primal values. The primal values are factored against their yield from the carcass, and the resulting values are aggregated into the final carcass cutout values for Choice and Select. These steps and their accompanying calculations are illustrated in a sample calculation below.

Step 1: Determining a Primal Value from a Sub-Primal Cut

A Choice Chuck individual primal style #6 is used for this example of how the cutout is calculated. When a sub-primal cut is produced from a primal, you not only get the sub-primal style, but also other components or credit items. See Figure 1 for the additional components produced with a style #6 Chuck. When combined, these components make up 100% of the original primal. Another factor to consider is shrink. When meat is cut, surface area is exposed allowing moisture loss, or shrinkage. Although minor, shrink accounts for a certain percentage of the original primal and is a non-recoverable loss absorbed by the packer.

The potential value of the primal varies based on what cuts or items are produced from it. To determine the value of a Choice Chuck primal, you need to determine the value of each of the item components of the Chuck primal. In Figure 1, the IMPS 114A Shoulder Clod portion of the style #6 Chuck accounts for 16.54% of the Chuck primal. Today's Choice IMPS 114A's are 2.0 loads, with a weighted average price of \$189.00. The previous day's value for 114A's was 2.0 loads, with a weighted average price of \$188.28. That makes the current 2-day weighted average for 114A's \$188.64 per cwt., so 16.54% of this price is \$31.20 which is the value the 114A contributes to the Chuck primal. The same calculation is completed for each of the other components to determine their contributing value to the Chuck primal.

The process detailed in Figure 1 determines the value of a sub-primal, depending on the individual cut styles produced from it. For each primal, this step includes using several different individual sub-primal styles.

The next step combines the sub-primal style values into a composite primal value.

Figure 1

#6 - 116A Chuck roll

| Item Components | #6 Yield | 2-day Weighted Average | #6 Value |
|---------------------------|----------------|------------------------|-----------------|
| 114A Trimmed Clod | 16.54% | \$188.64 | \$31.20 |
| 114F Clod Tender | 0.66% | \$279.59 | \$1.84 |
| 116A Chuck Roll n/o | 19.40% | \$250.26 | \$48.55 |
| 116B Chuck Tender | 2.71% | \$199.12 | \$5.39 |
| 130 Chuck Short Rib | 3.06% | \$292.42 | \$8.94 |
| Pectoral Meat | 2.00% | \$258.56 | \$5.17 |
| 50% Trimmings | 4.91% | \$43.03 | \$2.11 |
| 73% Ground Beef | 9.61% | \$106.45 | \$10.22 |
| 81% Ground Beef | 3.24% | \$148.02 | \$4.79 |
| 90% Ground Beef | 3.17% | \$213.16 | \$6.75 |
| Chuck Trim (Ground Chuck) | 5.25% | \$161.74 | \$8.49 |
| Shank Meat (Ground Chuck) | 5.02% | \$161.74 | \$8.11 |
| Fat | 8.77% | \$21.25 | \$1.86 |
| Bone | 15.24% | \$4.50 | \$0.68 |
| Shrink | 0.42% | | |
| Total Percentage | 100.00% | | \$144.10 |

Step 2: Calculating a Composite Primal Value

Once a primal style value is calculated from each of the major sub-primal items, the primal style values are combined into a composite value for the primal (see Figure 2). There are two major Chuck primal styles routinely produced from a 600-900 pound carcass: Semi-Boneless Neck-off Chuck and Chuck Roll. Each of these returns a value for the Chuck primal and contributes to its overall composite value.

The composite value for the Chuck primal is a weighted average calculated from the two Chuck primal style values, utilizing the number of loads of each sub-primal cut item listed in the individual item section as the weight. This allows the cuts produced in the largest quantity to have the most effect on the cutout, which is a common industry practice. These steps occur for each composite primal within the Choice and Select categories of the cutout as trades are reported.

Figure 2

| Chuck Styles | Loads | Price |
|---|-------|----------|
| #3 - 113C Semi-Bnls Nck-Off Chuck | 2.0 | \$143.00 |
| #6 - 116A Chuck roll | 5.0 | \$144.10 |
| Composite Chuck Primal Value: \$143.78 | | |

Step 3: Composite Primal Values to Carcass

In step 3 (see Figure 3), the composite Chuck primal value calculated in step 2, along with the composite primal values for the rib, round, loin, brisket, short plate and flank, are combined to create their respective carcass cutout value (the Choice 600-900# in Figure 3).

Each primal is a percentage of the entire carcass and this yield factor, or percentage, is multiplied by the composite primal value for each primal. These products are then summed, and the result is the carcass cutout for that grade category.

Figure 3

| Composite Primal Value | | | | | |
|--|--------------|---|--------------|---|------------------------|
| | Primal Value | x | Yield Factor | = | Contribution to Cutout |
| Rib | \$337.05 | X | 11.40% | = | \$38.42 |
| Chuck | \$143.78 | X | 29.62% | = | \$42.58 |
| Round | \$153.32 | X | 22.32% | = | \$34.22 |
| Loin | \$228.91 | X | 21.26% | = | \$48.67 |
| Brisket | \$151.93 | X | 4.95% | = | \$7.52 |
| Short Plate | \$108.38 | X | 7.10% | = | \$7.69 |
| Flank | \$85.61 | X | 3.35% | = | \$2.87 |
| Carcass Cutout Value = \$181.97 | | | | | |



Primal yield information for all styles produced as follows:

Rib Primal Styles

#4 – 109E Bone-In Lip-on Ribeye

#5 – 112A Boneless Lip-on Ribeye light

#6 – 112A Boneless Lip-on Ribeye heavy

| Components | #4 | #5 | #6 |
|--------------------------|---------|---------|---------|
| 109E 1 Bone-in Lip-on | 39.24% | - | - |
| 112A 3 Bnls Lip-on 12/dn | - | 32.34% | - |
| 112A 3 Bnls Lip-on 12/up | - | - | 32.34% |
| 123B 3 Short Rib | 9.80% | 9.80% | 9.80% |
| 124 4 Back Rib | - | 7.02% | 7.02% |
| Cap and Wedge Meat | 9.82% | 9.82% | 9.82% |
| 50% Trimmings | 14.55% | 15.33% | 15.33% |
| Fat | 13.64% | 13.58% | 13.58% |
| Bone | 12.45% | 11.56% | 11.56% |
| Shrink | 0.50% | 0.55% | 0.55% |
| Total Percentage | 100.00% | 100.00% | 100.00% |

Chuck Primal Styles

#3 - IMPS 113C Semi-Boneless Neck-off Chuck

#6 - IMPS HRI Chuck

| Components | #3 | #6 |
|---------------------------|---------|---------|
| 113C 1 Semi-Boneless | 56.81% | - |
| 114A 3 Special Trmd Clod | - | 16.54% |
| 114D 3 Top Blade | - | - |
| 114E 3 Clod Heart | - | - |
| 114F 5 Clod Tender | - | 0.66% |
| 116A 3 Chuck Roll n/o | - | 19.40% |
| 116B 1 Chuck Tender | - | 2.71% |
| Chuck Roll, retail ready | - | - |
| 130 4 Short Rib | 3.06% | 3.06% |
| Pectoral Meat 50% | 2.00% | 2.00% |
| Trimmings | 2.35% | 4.91% |
| 73% Ground Beef | 2.23% | 9.61% |
| 81% Ground Beef | 0.70% | 3.24% |
| 90% Ground Beef | 3.03% | 3.17% |
| Chuck Trim (Ground Chuck) | 7.22% | 5.25% |
| Shank Meat (Ground Chuck) | 5.15% | 5.02% |
| Fat | 5.74% | 8.77% |
| Bone | 11.41% | 15.24% |
| Shrink | 0.30% | 0.42% |
| Total Percentage | 100.00% | 100.00% |



Round Primal Styles

#6 - IMPS 168 commodity

#7 - IMPS 168 trimmed

| Components | #6 | #7 |
|-----------------------------|--------------|--------------|
| 167A 4 Knuckle | 11.20% | 11.20% |
| 168 1 Top Inside Round | 26.72% | - |
| 168 3 Top Inside Rd, trmd | | 25.15% |
| 171B 3 Outside Round (Flat) | 15.99% | 15.99% |
| 171C 3 Eye of Round | 6.66% | 6.66% |
| Heel (Ground Round) | 5.18% | 5.21% |
| Shank Meat (Ground Round) | 6.54% | 6.60% |
| 73% Ground Beef | 2.93% | 2.95% |
| 81% Ground Beef | 1.00% | 1.07% |
| Fat | 8.39% | 9.78% |
| Bone | 14.87% | 14.87% |
| Shrink | 0.52% | 0.52% |
| Total Percentage | 100.00% | 100.00% |

Loin Primal Styles

#4 - 174 Short Loin 0x1

#8 - 175 Strip Loin 1x1

#14 - 180 Strip Loin 0x1

| Components | #4 | #8 | #14 |
|---------------------------|--------------|--------------|--------------|
| 174 3 Short Loin | 24.39% | - | - |
| 175 3 Strip Loin 1x1 | - | 18.63% | - |
| 180 3 Strip Loin 0x1 | - | - | 14.45% |
| 184 3 Top Butt | 15.41% | 15.41% | 15.41% |
| 185A 4 Flap | 4.58% | 4.58% | 4.58% |
| 185B 1 Ball Tip heavy | 3.11% | 3.11 | 3.11% |
| 185C 1 Tri Tip | 3.93% | 3.93% | 3.93% |
| 189A 4 Tenderloin heavy | - | 7.55% | 7.55% |
| 191A 4 Peeled Butt Tender | 3.57% | - | - |
| Steak (Loin) Tail | 1.68% | 1.68% | 1.68% |
| Hanging Tender | 1.09% | 1.09% | 1.09% |
| 50% Trimmings | 10.35% | 10.00% | 8.33% |
| 73% Ground Beef | 2.62% | 2.39% | 3.88% |
| 81% Ground Beef | 0.82% | 0.76% | 1.21% |
| Kidney | 1.03% | 1.03% | 1.03% |
| Fat | 21.83% | 21.97% | 22.27% |
| Bone | 5.14% | 7.42% | 10.96% |
| Shrink | 0.45% | 0.45% | 0.52% |
| Total Percentage | 100.00% | 100.00% | 100.00% |



Brisket, Flank and Plate Primal Styles

#1 - 120 Brisket

#2 - 193 Flank

#5 - Short Plate

| Components | #1 | #2 | #5 |
|-------------------------|----------------|----------------|----------------|
| 120 1 Brisket | 63.29% | - | - |
| 193 4 Flank | - | 15.56% | - |
| 121D 4 Inside Skirt | - | - | 10.56% |
| Outside Skirt | - | - | 6.73% |
| 50% Trimmings | 9.62% | 26.93% | 34.27% |
| 65% Trimmings | | 2.00% | 18.05% |
| 73% Ground Beef | 2.85% | 2.39% | 2.10% |
| 81% Ground Beef | 0.95% | 0.77% | 0.67% |
| Cap and Wedge Meat | - | - | 3.76% |
| Fat | 10.46% | 51.80% | 7.68% |
| Bone | 12.34% | - | 15.47% |
| Shrink | 0.49% | 0.55% | 0.71% |
| Total Percentage | 100.00% | 100.00% | 100.00% |

Primal to Carcass Yields

| | |
|-------------|--------|
| Rib | 11.40% |
| Chuck | 29.62% |
| Round | 22.32% |
| Loin | 21.26% |
| Brisket | 4.95% |
| Short Plate | 7.10% |
| Flank | 3.35% |

Contact Us: If you need additional assistance, please call our Market News team at (515) 284-4460 or email us at websupport.lpgmn@usda.gov.

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