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Product Information, General

*Always buy from a
USDA - inspected
plant.*

Processing and Selecting Beef for Foodservice Applications

The beef industry is a large and complex business, where animals may be bought and sold several times before they enter the food chain. Typically, beef cattle are harvested at 18 to 22 months weighing an average of 1,225 pounds (average carcass weight is 778 pounds). In an efficient beef processing operation, harvest occurs within 1 to 2 hours of arrival at the plant. Chilling begins almost immediately and continues for 24 hours. When thoroughly chilled, the carcasses are graded by USDA personnel, then fabricated, vacuum packaged and boxed – the entire process occurs within 48 to 72 hours after harvesting.

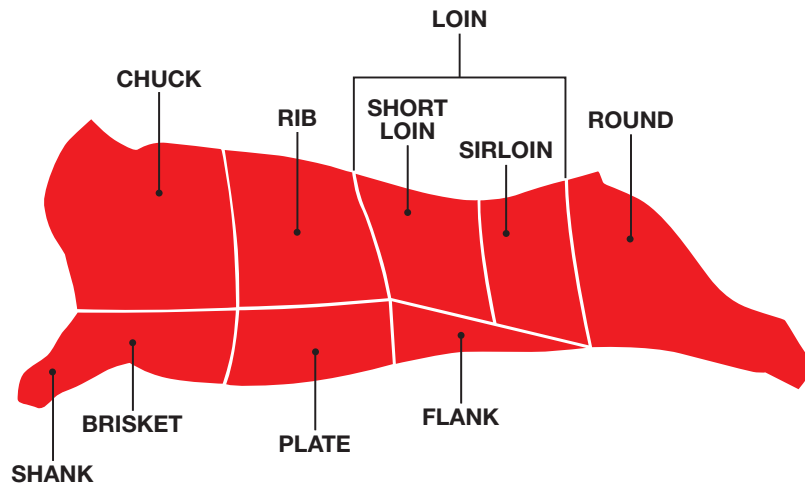
Composition of Meat

The word “meat” refers to any of the edible parts of a carcass. A carcass is made up of four major tissues – muscle, fat, bone and connective tissue. In the broadest sense, “meat” includes everything except bone, but usually we are talking about muscle because it’s the major component of meat.

Muscle tissue is about 72% water, 20% protein, 7% fat and 1% minerals. A single muscle is made up of many “bundles” of muscle cells or fibers held together by connective tissue. These bundles vary in size in different muscles in the same animal and in different species. The size of the bundles, along with the thickness of the cells and the connective tissue, form the grain of the meat and determine the meat’s texture. When the fiber bundles are small, the meat has a fine grain and texture. As an animal fattens, or as it matures, water and proteins in the muscle tissue decrease while fat increases, producing marbling.

Connective tissues are the tendons and ligaments that attach muscles to the bone, and help give muscles their shape and form. The amount of connective tissue determines the meat’s tenderness; the greater the connective tissue, the less tender the meat. Muscles that are used for locomotion and power (i.e., in the legs and shoulders) have more connective tissue and typically yield less tender meat. The muscles of support (i.e., in the back – rib and loin) move less, are not as important for locomotion or power and, as a result, are more tender. Other muscles, such as those in the portion of the shoulder nearest the rib, in the rump and in the upper portion of the hind leg, provide moderately tender meat. Through recent research, several individual muscles in the shoulder area have been found to be tender.

Connective tissue is mostly composed of either collagen or elastin. Collagen, the single most abundant protein, is a major factor influencing the tenderness of the muscle after cooking. It is not broken down easily by cooking except with moist-heat cookery methods, when it converts to gelatin. On the other hand, elastin – sometimes referred to as “yellow” connective tissue – is not degraded by moist-heat cookery methods and should be trimmed away before meat is cooked.



Fabrication of Primals

A beef carcass is typically cut (or fabricated) into *primals* in different styles by the packer or processor, depending on the needs of their customers. Although these variations may change the exact location where the carcass will be cut, there are four major primals resulting from the initial “break” of the carcass. These primals – the round, loin, rib and chuck – account for over 75% of the entire beef carcass.

Primals, which are rarely cooked, are then usually reduced to subprimals. Subprimals can be cooked or used to produce fabricated cuts. Several common-sense principles are used by packers when separating a carcass into primal, subprimal and further fabricated cuts, including:

- Separate tender portions of the carcass from less tender portions.
- Separate lean areas from the portions with greater amounts of fat.
- Separate thicker, more heavily muscled portions of the carcass from the thin-muscled sections.
- Cut across the “grain” of the muscles (perpendicular to the predominant direction in which muscle fibers run) to the greatest extent possible.

Fabrication of Subprimals

After packers and processors separate carcasses into primals, most continue to break down these into smaller portions, called *subprimals*, for ease and efficiency of handling and marketing. In most cases, excess trimmable fat and bone are removed when fabricating subprimals, although the more popular bone-in subprimals (such as a bone-in rib roast) are also available. If not further processed into portion-cut products at the plant, subprimals are usually vacuum packaged and boxed at the packing plant for distribution to customers.

If a foodservice operator chooses, subprimals may be purchased for further fabrication in the kitchen into steaks or roasts. Boneless strip loin is an example of a subprimal cut often purchased in this manner.

For more information on carcass yield characteristics, see the Beef Cutout Calculator at www.beefcutoutcalculator.colostate.edu

PRIMALS
 ↓
 SUBPRIMALS
 ↓
 PORTION CUTS



1114D PSO1



1114E PSO1



114F PSO1



1114F



Fabricating Oven-Ready and Portion-Control Cuts

Although some foodservice operators buy subprimals and cut their own steaks and roasts, an increasing number of operators purchase *oven-ready* or *portion-cut* items directly from suppliers, whether by preference, or because they no longer have the time, facilities or the skilled labor to accomplish this task.

Purchasing oven-ready or portion-cut beef items has several advantages for foodservice operators:

- Less in-house skilled labor is needed
- Uniformity and consistency of product is assured
- More time is available for more creative preparation and presentation
- Product is used as needed and does not require in-house freezing, thereby reducing product waste
- Packaging of these items usually allows safer and more efficient handling and storage

There are some limitations in ordering portion-cut steaks. For instance, portion-cut steaks can only be ordered by weight or by thickness, not both. The varying shapes and sizes of the subprimal cuts among carcasses make that impossible, since a 1-inch thick ribeye steak from a small carcass would weigh less than a 1-inch thick steak from a large one.

Muscle Profiling Study

In 2000, NCBA's Center for Research and Technical Services, in partnership with the University of Florida and the University of Nebraska, conducted a Beef Checkoff-funded research project that analyzed over 5,600 muscles representing 39 different muscles from the chuck and the round for palatability and functionality.

Researchers discovered that several tender and flavorful muscles in primals and subprimals could be extracted and turned into new cuts of beef that offer greater consistency and tenderness. As a result of the findings, The Beef Checkoff introduced new beef cuts from the underutilized chuck and round that have, in effect, expanded the steak category.

Turning the underutilized chuck and round into these new cuts means more profitability and higher margins for foodservice operators. In addition, while these cuts have a significant impact year-round, foodservice operators can leverage key benefits during certain times of year. For instance, when both demand and price for steaks increase during summer months, operators can feature more steak options, increasing traffic and margins. The following four new steak cuts are applicable to, and appropriate for, foodservice use:

- IMPS/NAMP 1114D PSO1 Beef Shoulder, Top Blade Steak (*Flat Iron Steak*)
- IMPS/NAMP 1114E PSO1 Beef Shoulder, Arm Steak (*Ranch Steak*)
- IMPS/NAMP 114F PSO1 Beef Chuck, Shoulder Tender (*Petite Tender*)
- IMPS/NAMP 1114F Beef Shoulder Tender, Portioned (*Petite Tender Medallions*)

For more in-depth information on these new steak cuts, including how-to cut instructions, menu applications, recipes and profitability, visit the Beef Innovations Group website at www.beefinnovationsgroup.com/beefvaluecuts.aspx. For additional information, visit <http://bovine.unl.edu>

Ordering Beef for Foodservice Applications

The foodservice operator depends upon packers, processors and purveyors to further fabricate primal cuts into more usable subprimal cuts, or oven-ready roasts and portion-cut steaks, designed to meet their needs.

The challenge for the foodservice operator, then, is to clearly identify what is needed in the kitchen, to clearly describe that need to the supplier, and to be sure that the product ordered is purchased at a fair and competitive price. This is not an easy task, and is one that depends, to a great extent, on effective communication between the buyer and suppliers.

IMPS/NAMP

To assist foodservice operators in procuring needed items, the U.S. Department of Agriculture (USDA) developed a set of written descriptions of standardized beef cuts. Designed cooperatively with industry buyers and suppliers, these descriptions, called the *“Institutional Meat Purchase Specifications”* (IMPS) are designed to facilitate buyer-supplier communications in meat product transactions. (www.ams.usda.gov/LSG/imps/imps100pc.pdf)

To further facilitate these buyer-supplier communications during procurement, the North American Meat Processors Association (NAMP), working with USDA, the National Cattlemen’s Beef Association, and other industry groups, has made the IMPS specifications more user-friendly by publishing a full color manual, *“The Meat Buyer’s Guide”* (MBG), which depicts each IMPS item with a color photograph and a written description. (www.namp.com)

The MBG contains product descriptions for more than just beef items, and can be extremely useful for all meat purchasing decisions. The MBG provides illustrations and descriptions on the following meat items, with the NAMP numbering system for cuts coinciding with the IMPS numbering system:

	Standardized Cut Series	Portions Cut Series
Beef	100	1000
Lamb	200	1200
Veal	300	1300
Pork	400	1400
Cured/Smoked/Fully Cooked Pork	500	1500
Cured/Dried/Cooked/ Smoked Beef	600	
Edible By-Products		
Beef		1700
Veal		3700
Sausage Products	800	
Poultry	P1000	
Turkey	P2000	
Duck/Goose	P3000/P4000	
Game Birds	P5000	

The IMPS/NAMP system of naming cuts is based on anatomical descriptions. For instance, a Beef Loin, Strip Loin, Boneless (IMPS/NAMP Item 180) is:

- (1) a beef item
- (2) from the beef loin
- (3) is a loin strip cut
- (4) is boneless



In the MBG, portion-cut items reflect the subprimal from which they are cut, and simply have a “1” placed in front of the item. For example, a steak fabricated from a *Beef Chuck, Shoulder (Clod), Top Blade, IMPS/NAMP Item 114D* is identified as a *Beef Shoulder, Top Blade Steak (Flat Iron), IMPS/NAMP Item 1114D PSO1*.

Using the MBG, a foodservice buyer can communicate directly (over the phone, by Internet, or in person) to the supplier in describing exactly what is needed for the specific application. With both buyer and supplier looking at the same illustration and description in the MBG, the buyer can describe what is needed, the specific requirements of quality grade, weight or thickness, fat trim level desired, tail length (when appropriate), etc.

In addition, by using the same process with several potential suppliers, the buyer is assured that the same item is being described to each supplier to be sure offers are made on identical products – that is, comparing “apples to apples” – when making purchasing decisions.

It should be noted that many suppliers do not strictly adhere to the IMPS/NAMP cutting descriptions, and may have their own specifications. These variations may be confusing, so the buyer needs to understand how a supplier’s cuts vary from the IMPS/NAMP specifications. However, most suppliers use the MBG as the universal industry reference when discussing purchase options. To the greatest extent possible, “fanciful” names are avoided, with a few notable exceptions such as “T-Bone” and “Porterhouse.”

Cutting tests can be a valuable tool to determine which purveyor's product provides the most usable product for your operation.

Pricing Decisions

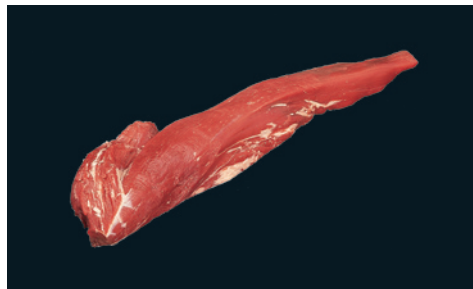
Many foodservice purchasers have difficulty understanding why similar cuts of beef can vary so widely in price. Many times, this problem can be understood by simply being familiar with differences in the products that are available for purchase.

For example, let's say that you have the following two quotes on U.S. Choice beef tenderloins:

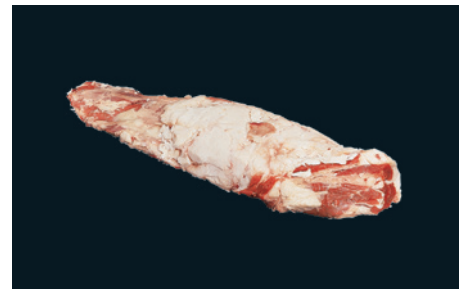
- Supplier A- #190A Beef Loin, Tenderloin, Full, Side Muscle Off, Skinned, 5.0 lb. average weight, offered @ \$10.00/lb.
- Supplier B- #189 Beef Loin, Tenderloin, Full, 8.0 lb. average weight, offered @ \$7.75/lb.

On the surface, these products may seem the same. But one is \$2.25 per pound less than the other. Why is Supplier B able to sell his product at a lower price? Chances are you're not comparing apples with apples.

Look at your MBG and compare the specifications on the product. Just looking at the photographs tells you they are considerably different.



Supplier A



Supplier B

By reading the product description, you see that the #189 Beef Loin, Tenderloin, Full has a fat specification of 3/4" at one end tapering to meet the lean. However, the #190A Beef Loin, Tenderloin, Full, Side Muscle Off, Skinned is defatted.

Since the #190A tenderloin averages 5 pounds and the #189 tenderloin averages 8 pounds, the yield (*based on your cutting tests, of course*) in usable tenderloin steaks would be the same after the #189 tenderloin is fully trimmed.

- Tenderloin (#190A) 5.0 lb. x \$10.00 = \$50.00
- Tenderloin (#189) 8.0 lb. x \$7.75 = \$62.00

Therefore, the difference in "yield" of the products would actually make the #190A tenderloin a better purchase option, since it does not require any additional labor for trimming before it is cut into tenderloin steaks.

When you purchase beef, you may want to routinely conduct cutting tests and keep these for comparison to other suppliers you might buy from in the future. Cutting tests can be a valuable tool to determine which purveyor's product provides the most usable product for your operation.