
BEEF U™
a foodservice guide to beef
BEEF LOVING TEXANS®
TEXAS BEEF COUNCIL

CONTENTS

For additional information visit:

www.beeffoodservice.com

or call:

BEEF LOVING TEXANS®
TEXAS BEEF COUNCIL

512-335-2333

For an electronic copy of this manual and teaching slides visit:

Beeffoodservice.com
resource room tab

BEEF U

a guide for professionals

Industry History

Contents:

BEEF®

Funded by the Beef Checkoff.

Industry History

Industry Background/History

Early American cattle originated in Europe but arrived in the Americas by many routes: Texas, Florida, California, Virginia and New England. By the time cattle reached Texas and California from Mexico in the 1500s, a cattle industry was emerging in Florida. In 1607, cattle arrived at Jamestown, Virginia, but none survived.

More came in 1611, at which time Virginia Governor Thomas Dale issued a proclamation: "No man shall dare kill any bull, cow, calf...whether his own or appertaining to another man." Thanks to this conservation step, and with further imports, cattle became established in Virginia, with an estimated 500 head by 1620 and 30,000 by 1639. At the same time, cattle from England and northern Europe began arriving in New England and appeared in New York State as early as 1625.

By the 1890s rangelands were becoming available to cattle to the west. The great herds of buffalo were gone, the American Indians were increasingly relegated to reservations, barbed wire had carved out farms and ranches, and a growing network of rails had replaced the traditional trail drive. Cattle production was now a thriving business owned by both small and large producers. A new century was approaching, and the world of the American cattleman would change dramatically.

The growing cattle industry of the late 1800s was focused almost entirely in the West, with essentially all operations being family owned and managed, a cornerstone of the cattle industry that remains even today. The industry was organized to produce four-to-five-year-old grass-fed steers which were shipped live by train (usually between July and November) from local loading stations along an ever-growing network of rail lines eastward to centralized markets.

The large stockyards in cities such as Chicago and Kansas City served as gathering points for cattle coming from the west in the rail cars, where they were sorted and distributed out to packers operating near the yards. Today's marketing categories of "feeder" or "stocker" cattle did not exist, and heifers were seldom slaughtered. Although the groundwork of today's cattle feeding industry was emerging in the Corn Belt, this "feeding" was usually a sideline of the Midwestern farmer's corn and hog enterprises, who kept cattle simply to use up excess corn.

Packers, too, were concentrated at the rail centers, where they processed all types of livestock. Their customers were smaller butcher shops in the immediate area and to the east, each of which merchandised an assortment of meat products to local customers. Refrigerated rail cars (invented by Gustavus F. Swift) were loaded with beef quarters hanging from the ceiling, while the floor of the cars had boxes of ham, bacon and lamb carcasses and calf carcasses wrapped in cheese cloth.

Larger packers operated regional shipping and distribution offices in areas of concentrated population (such as New York City, Boston and Philadelphia), from which smaller "truck routes" would then sell and deliver quarters of beef (and other fresh meat carcasses), smoked meats and sausages to neighborhood meat markets and restaurants in each town and city throughout the region. Each local market or restaurant would then produce cuts of beef, pork and lamb, as well as sell smoked meats and sausages desired by the local customers.

However, the 20th century brought dramatic changes to the structure of the cattleman's life. Among the most dramatic were the following:

Federal Meat Grading System

Prior to the early 1900s, live cattle were traded "on-the-hoof" with no standardized system to separate desirable cattle from less desirable. However, in the 1920s the U.S. Department of Agriculture (USDA) established standards for grades of live cattle and beef carcasses, providing the benchmark for trading live cattle and carcasses on the open market. The determination of an official grade is made by an unbiased third party (the USDA).

Grade standards have facilitated the marketing of both beef cattle and beef cuts. Today, live cattle of uniform quality and yield can be marketed by producers to packers at a price reflecting its value, and the packer, in turn, can group cuts of similar grade and yield for sale to customers based on demand.

Using the federal standards, today's beef producer can make critical production decisions to reflect the market demand for specific grade requirements, thereby optimizing profit opportunities.

Federal Interstate Highway System

Prior to the construction of the Interstate highway system, cattle production was dependent upon access to the railway system for movement of live animals to the point of harvesting. Likewise, packing facilities were found in areas with ready access to rails, to facilitate movement of highly perishable meat products to the centers of population.

The Federal Interstate highway system was initially developed in the 1950s for national security reasons. Up to that time, a network of smaller, usually two-lane roads weaved throughout the United States. In some cases, these were little more than dirt roads, with each state (and perhaps each municipality) having differing construction standards for roadways. As World Wars I and II demonstrated to the nation, global conflicts in the 20th century could rapidly move across international boundaries. Therefore, to ensure the ability of the military to rapidly move troops and large equipment throughout the United States on dependable and standardized roadways in times of national emergency, the Interstate highway system was established by Congress.

A "by-product" of the Interstate highway system for the cattle industry was that cattle production was no longer dependent upon ready access to railways, and packing houses were no longer tied to rail heads with large stockyards to concentrate livestock. The Interstate system facilitated the movement of live cattle (and other livestock) to

packing houses, which could now be located closer and more centralized to livestock production areas, reducing transportation costs. Further, packers were no longer dependent upon railways to transport their perishable products, which could now move throughout the country in refrigerated truck trailers. In today's marketplace, packers often deliver products directly from the packing facility to the retail or foodservice operations.

From Marketing Carcasses to Marketing Primal Cuts

Prior to the introduction of primal cuts to the meat industry, entire beef carcasses or sides (shipped as quarters) were sold to meat markets and restaurant purveyors throughout the country. As a result, these operations not only were able to produce the specific beef cuts desired by their customers, but also needed to merchandise the less desirable parts of the carcass as well. In addition, large amounts of waste fat and bone were generated in these operations, requiring a major disposal problem in many areas.

As the meat industry grew, the concept of subdividing carcasses at the packing house and shipping parts (or primal cuts) evolved. In effect, the meat industry appeared to have taken a lesson from Henry Ford's assembly line, but in reverse, in developing a "disassembly" line for beef carcasses.

In doing so, packers were able to separate primal (and subprimal) cuts by weight and grade for marketing and merchandise them in boxes of similar product characteristics ("boxed beef"), thereby providing customers with a more uniform and easily handled product. In addition, excess fat and bone were no longer shipped to the end-user and could be further processed at the packing plant location.

An important subsequent step in this transition was the introduction of "vacuum packaging," which allowed primals and subprimals to be packaged in vacuum bags at the packing plant, with the added benefit of extended shelf-life and enhanced food safety at the point of use. The introduction of "block-ready beef," "boneless beef" and "case-ready beef" are further refinements of this important transitional step.

Development of a Consumer-Driven Beef Market:

Until the later part of the 20th century, the beef industry was "producer-driven," meaning that cattle were produced on farms and ranches with little regard for the end use.

Products sold at retail or used in foodservice often had excess fat and, consequently, did not fit the desires of "health-conscious" consumers for leaner food products. As a result, beef demand rapidly began to drop, with consumers opting for visually leaner choices, such as chicken. Recognizing this dramatic downward trend, the National Cattlemen's Beef Association (through its predecessor organizations, the National Live Stock and Meat Board and the National Cattlemen's Association) conducted market research to assess the specific factors influencing consumer demand for beef.

This research helped the industry respond to consumer preference for lean beef. In 1990, the industry issued the "War on Fat," a report funded by The Beef Checkoff. The focus of this initiative was to reverse the driving force in the beef marketplace from a "producer-driven" to a "consumer-driven" market, where the industry would respond

directly to the demands of its consumers in both the foodservice and retail sectors, and make industry adjustments accordingly. A key element of this initiative was to reduce the visual external fat on beef cuts. Consumers indicated that they wanted the "taste fat" (the marbling with a beef cut) but not the "waste fat" (the fat they trimmed off the cut and discarded).

In the short run, the industry immediately reduced the "waste fat" by trimming cuts to one-fourth inch on primal and subprimal cuts sold to foodservice and retail operators, with end-users (foodservice operators and retailers) often reducing this to one-eighth inch prior to sale. In the longer term, beef producers have made breeding and feeding decisions that are leading to leaner cattle, with the goal of being as responsive to consumer demands as possible.

The impact of the War on Fat is that the dramatic steps taken by the industry have resulted in the reversal of the downward trend in beef demand, increasing 25% over the last six years. This has provided further opportunities for all segments of the industry, from producer to end-users, to realize improved profit opportunities. However, throughout the history and evolution of the cattle industry in the United States, one essential characteristic has remained constant—the family owned and managed approach to the business has remained a cornerstone of the industry.

Economic Factors Affecting Supply and Demand for Beef

It takes between 2 and 2½ years from the time a calf is conceived until it's ready for market. Needless to say, all that feed, time and animal care costs the producer money, and the goal of a producer is to realize a sale price for an animal that covers all the production costs and allows for a reasonable profit.

Like most products, supply and demand is how the price for cattle and beef is determined. What's different about beef is that the supply can't be adjusted as quickly as other food products. This is a major factor influencing the fluctuation of beef prices.

When beef supply falls below the level of beef demand, prices tend to rise. This is an automatic signal to producers to increase beef production. But the effect is not immediate because it takes 2 to 2½ years to produce an animal once the decision to increase production is made. On the other hand, if the beef supply exceeds demand, prices will fall. The unique situation with beef, however, is that you can't stop the production line. Producers have to sell cattle when they're ready to market, regardless of the price. This means that an oversupply may continue for as long as 2 years, even if prices for live cattle continue to drop.

The cattle industry historically goes through 10-to-12-year cycles—from high production to low production and back again. It's a constant up-and-down, profit-and-loss situation that can be a roller coaster ride for producers.

Since 1950, the prices paid to farmers and ranchers have gone through profit/loss swings so severe that it wasn't until 1971 that cattle prices caught up with and passed prices in 1951—even though the costs of cattle production had risen dramatically. The meat industry knows that it will need to increase production in the future to meet a

growing demand, both domestically and internationally. But to meet this demand, sharp market fluctuations will have to be effectively addressed. Cattle producers indicate they can do this if they are able to meet the costs of production as well as obtain a reasonable profit.

Some factors that can vary and thus impact beef industry profitability include:

- The U.S. beef industry is made up of more than 1 million businesses, farms and ranches operating in all 50 states. (Cattle Fax, March 2005)
- The average herd size is 42 head. (USDA, July 2011)
- In 2010, beef production reached 26.3 billion pounds. (Cattle Fax, March 2011)
- While the U.S. has less than 10% of the world's cattle inventory, it produces nearly 25% of the world's beef supply. (Cattle Fax, March 2011)
- In January 2011, there were an estimated 92.6 million cattle in the U.S. (Cattle Fax, January 2011)
- In 2010 cash receipts from cattle and calves totaled $45.3 billion. (Cattle Fax, April 2011)
- Gross income of cattle and calves in 2010 was $52.0 billion and total inventory value was nearly $110 billion. (Cattle Fax, July 2011)
- Consumer demand for beef decreased 1% in 2010. Demand is a measure accounting for both per capita consumption and consumer spending for beef. (Cattlemen's Beef Board, 2011)
- Yearly per capita beef consumption in 2010 was 59.6 pounds. (Cattle Fax, July 2011)
- Total consumer expenditures topped $74 billion on beef —the seventh consecutive year consumer spending exceeded $70 billion in a given year. (Cattle Fax, March 2011)
- Annual retail beef prices averaged $4.02 per pound in 2010, compared to $3.89 per pound in 2009. (Cattle Fax, March 2011)
- Per capita spending for beef increased to $240 in 2010 (for retail and foodservice). This is up about $40 per capita from 2001. Per capita spending for pork was $149 and per capita spending for chicken was $143 in 2005. (Cattle Fax, March 2011)

U.S. Imports/Exports

U.S. imports of beef decreased 12.5 percent in tonnage and increased 3.8 percent in value between January and December 2010 compared to imports in 2009. Major suppliers continue to be Australia, Canada, and New Zealand with those three countries accounting for approximately 80 percent of the beef tonnage and value imported by the U.S. In 2010, Canada is the largest source of U.S. imports at 37 percent of the volume and 33 percent of the value of total imports.

In 2010, U.S. beef exports totaled 2.3 billion valued at $3.5 billion. Traditional primary export markets Japan, Mexico, the Republic of South Korea and Canada accounted for nearly 66 percent of export volume and 69 percent of export value in 2010.

- Mexico was the largest market for beef exports in terms of volume, and Canada was the largest in terms of value in 2010.

- Beef exports to South Korea increased nearly 100 percent in 2010, and exports to Japan were up 28 percent.
- Beef exports to "other" countries excluding the big 4 have increased 188 percent since 2007, up 510 million pounds and totaling 781 million pounds in 2010. The market share of these "other" countries has increased from 19 percent in 2007 to 34 percent in 2010.
- U.S. beef exports totaled 2.3 billion pounds in 2010, which was up 19 percent from 2009. Total beef exports in 2010 nearly reached the levels experienced prior to BSE (commonly known as mad cow disease).
- The value of U.S. beef exports including variety meats is now between $180 and $200 per fed steer/heifer in 2011.

While the United States has less than 10 percent of the world's cattle inventory, it produces nearly 25 percent of the world's beef supply. The U.S. is the largest beef importer in the world, importing 2.3 billion pounds in 2010, and is historically among the top three largest beef exporters, along with Brazil and Australia.

The Beef Price Cycle

Just as produce can offer seasonally low prices, certain beef cuts are better buys at particular times of the year. That's because beef, like other commodities, experiences regular yearly shifts in supply and related price cycles.

The average choice cut-out price will typically peak in the spring and fall, when middle meat demand is the strongest and cattle supplies are at their lowest levels. Prices tend to lower in the summer months when cattle supplies are at their peak.

Lean trimmings come from cattle with little external fat, the bulk of which are marketed in the fall, resulting in lower prices. Tighter supplies, combined with grilling demand, support prices in the spring and early summer.

Chuck prices are best during the colder months, as they are well suited for braising menu applications. As one of the lowest valued primals, they are also a budget-friendly option post-holidays. Chuck prices have increased in recent years, in large part, due to increased demand for Chuck cuts like the Flat Iron Steak and Petite Tender which are tender, perfect for year-round menu applications.

Demand for end-of-the-year celebrations usually result in the highest prices of the year for Choice Ribs. Prices peak again in the spring and early summer due to grilling demand for holidays like Memorial Day and Father's Day.

Limited cattle supplies, especially for Choice-graded carcasses, result in higher Choice Loin prices in the spring months. Prices decrease in the summer months when supplies increase. Holiday demand supports Choice Loin prices late in the year.

As with Chucks, prices normally peak early and late in the year because of increased consumer demand during colder months. Declining values during the summer months are the result of a growth in supply and a decrease in consumer demand.

Beef Production in the U.S.

American farmers and ranchers produce the safest beef supply in the world, and the safety and quality of U.S. produced beef places it in high demand, both domestically and internationally. The cattle industry is, traditionally, a family-oriented business. In fact, 80 percent of U.S. cattle businesses have been in the same families for more than 25 years, and 10 percent for over 100 years.

The cattle industry is also a major contributor to the economy of the United States. There are approximately 750,000 ranchers and cattlemen in the United States, conducting business in all 50 states and contributing to the economy in nearly every county in the nation. In 2010, U.S. cash receipts from livestock totaled $130 billion—45 percent of the total for all farm cash receipts in 2010 ($291 billion).

On January 1, 2011 there were 92.6 million cattle in the United States, 1.4 percent fewer than a year earlier. U.S. beef production was 26.3 billion pounds in 2010, up 1.4 percent from 2009.

The beef industry, in its entirety, is more than just the cattle producer. It encompasses the entire range of industry participants, from seedstock producers to the ultimate consumer. Each plays an important role in "getting beef to the table," and each can impact the quality and utility of beef products.

Seedstock Producer: Often referred to as the "purebred" segment, these producers, through genetic selection, develop the genetic base for breeding stock used by the cow/calf segment. Specific genetic lines are developed based on their ability to enhance the beef production system, as well as meeting the quality demands of the consumer.

Cow/Calf Producer: These producers make breeding decisions that combine the genetic lines developed by seedstock producers to best meet the market demand. This often involves "crossbreeding," or combining genetics (perhaps from as many as four distinct genetic lines) to produce the cattle that will ultimately be fed for harvesting. These cattlemen sell weaned calves (usually 6 to 10 months old) to "stocker" operations or to "feedlots."

Stocker: This is a rather specialized segment of the industry, where cattlemen take advantage of grasslands as a naturally available resource to feed weaned cattle prior to placing them in feedlots for grain-based finishing. These cattlemen purchase weaned calves and graze them on grass until they weigh as much as 900 lbs (usually around 12 months old), and then market them to a feedlot. The grazing of cattle converts natural grassland resources—much of which has no other practical use— into beef for human consumption, and contributes to the economical production of beef.

Feedlot: Feedlots may purchase weaned calves from the cow/calf producer or cattle from the stocker segment, finishing them on grain-based diets (often corn) to harvest weights of 1,225 to 1350 lbs. (average carcass weight is 810 lbs.). Cattle are in feedlots for an average of 150 days, depending on the purchase weight and the targeted harvesting weight. These animals are then marketed to packers.

Packer: Beef packers harvest finished cattle purchased from feedlots, converting the live animals into human food in the form of beef. The harvesting process is conducted with the oversight of the USDA inspection program, to ensure food safety and wholesomeness. If the packer chooses, the USDA grading service may also apply official quality and yield grades to carcasses at this point. Packers then fabricate (or cut) beef carcasses (typically weighing 600 to 800 lbs) into "subprimal" cuts (such as the Top Round, Tenderloin or Ribeye), and place vacuum-packaged subprimal cuts of similar weight and grade into boxes ("boxed beef"). Some packers may also further process the subprimals into individual cuts. In addition, packers are able to make efficient use of animal by-products (hides, waste fat, bones, etc.) at this point in the beef production system. The beef is then marketed to purveyors/processors or retailers.

Purveyor/Processor: This segment fabricates boxes of subprimal cuts into the portion cuts familiar to foodservice operators. The purveyor has traditionally marketed to the hotel, restaurant and institutional (HRI) trade, which today often has no meat-cutting capabilities. An increasing number of operations, however, which in the past have purchased boxed beef directly from packers and performed their own meat cutting in-house, are now buying further-processed fresh beef items. These purchases may be from purveyor/processors or directly from packers.

Foodservice Operators and Retailers: These operations purchase beef products from purveyors, processors or packers, and present them to consumers. Because they are closest to the consumer and directly depend on their purchasing decisions, they watch for trends and styles that affect consumer demand for beef. By passing these consumer patterns back through the beef production system, they provide valuable feedback to each segment on which future production decisions can be based.

Consumer: When domestic and international consumers purchase American beef, either as part of a meal away from home or from the retail meat case, messages are sent to the entire beef production chain, which can influence subsequent decisions made at each step throughout the beef system.

Breeds

Cattle are raised in all 50 states and the environment changes dramatically from region to region. Various cattle breed types and crossbreed cattle are needed to adapt to the diverse weather conditions that exist throughout the United States. Breed types and their adaptability to the environment are very important for the production of beef.

Kobe Beef, a breed that is often asked about, is from Waygu cattle that have been raised exclusively in Kobe, Japan. Characterized by very heavy marbling, this beef is expensive and rarely available in the U.S. outside of the foodservice market. Waygu cattle raised in some parts of the U.S. are marketed under the name "Kobe-style."

Beef Labeling Claims Reflecting Specific Feeding Practices

Today's beef producers have production and marketing choices that enable them to provide customers with a variety of quality beef products from which to choose. Because the U.S. beef industry is consumer-focused and market-driven, consumer demand drives producer marketing decisions.

Most of the beef available to foodservice operations is produced using conventional industry practices. Such beef comes from cattle raised for some period on forages (pastures), and then fed a grain-based diet in a conventional feedlot prior to harvest. The grain-based "finishing period" is designed to increase the palatability (juiciness, tenderness and flavor), as well as the consistency, of the final beef product. Research shows that consumers generally prefer the flavor associated with grain-finished beef.

However, when selecting beef for preparation in a foodservice facility, operators may see several different label terms intended to indicate who produced the product or how the animals from which the meat was harvested were raised. The following represent some of the labeling claims and what such label terms mean.

Branded Beef Products

"Branded beef products" may be marketed by a company based on product specifications or production standards that the company designates for their product. "Brand" specifications may include such factors as a specific breed influence, quality standards based on USDA grading standards or specific product characteristics that customers may deem important. For more information on certified beef programs, visit the USDA website at: http://www.ams.usda.gov/AMSv1.0/LSMeatGradingCertificationServices .

Branded products are subject to the same USDA wholesomeness inspection that any other beef produced in the U.S. must undergo. In addition to the mandatory inspection for wholesomeness, companies must obtain approval of their product labels from the USDA Food Safety and Inspection Service (FSIS) and may further request that personnel from the Grading Service of the USDA Agricultural Marketing Service (AMS) verify their brand specifications claims by examination of designated carcasses in packing plants.

"Natural" Beef

When used with meat products, the term "natural" is perhaps the term most misunderstood by buyers. U.S. meat and poultry companies have marketed "natural" meat for many years. However, in 1982, USDA issued a Policy Memorandum for clarification, indicating that the term "natural" may be used to label meat products that do not contain artificial ingredients and are not more than "minimally processed." Specifically, the USDA Food Safety and Inspection Service (FSIS) defines a "natural" product as follows: "A product containing no artificial ingredient or added color and is only minimally processed (a process which does not fundamentally alter the raw product) may be labeled natural. The label must explain the use of the term natural (such as: no added colorings or artificial ingredients; minimally processed)."

"Minimal processing" includes physical processes that do not fundamentally alter the raw product, such as grinding meat.

Based on the USDA definition, most fresh beef offered for sale is "natural." To determine exactly what a producer of a "natural" beef product means by the term, purchasers should carefully read the product label or contact the company.

Beef purchasers should be especially careful to not confuse the terms "natural" and "organic." While it may seem logical that the terms "natural" and "organic" are similar, they actually have different meanings when it comes to USDA meat product labeling. The USDA certification process for organic products is much more stringent than for natural products.

Certified Organic Labeling

Organic meat and poultry products are a small but growing category of products. The Organic Trade Association projects that the organic market in the U.S. will reach $30.7 billion by 2007. With the enactment of the Organic Foods Production Act, which became effective in October 2002, USDA standards were established for all foods labeled as "organic." Organic products must be certified by either a state or private organization that is accredited under the standards of the USDA. However, producers selling less than $5,000 of organic products per year are exempted.

There are specific USDA regulatory standards that must be followed in order to certify crops or livestock as "organic." These standards are very specific and require that the operation adhere to every aspect of the Organic Foods Production Act.

Beef labeled as "organic beef" must meet the requirements of the Act, and producers of such products must be certified through USDA's Agricultural Marketing Service (AMS). Among the requirements are:

- Organic beef cattle must be raised separately from conventionally raised herds and must have access to pasture. Living conditions must accommodate the health of the animal and its natural behavior.
- Cattle must be fed 100 percent organically grown feed (grains and forage), but may be provided certain vitamin and mineral supplements. All feed must be free of animal by-products.
- Organically raised cattle may not be given hormones to promote growth or antibiotics for any reason. However, if an animal is sick, treatment to ensure its health cannot be denied. Any animal that is treated with antibiotics must be removed from the National Organic Program. However, animals can receive preventative medical care, such as vaccines and dietary supplements (vitamins and minerals).
- The use of synthetic pesticides on pastures is prohibited.
- The use of sewage sludge for fertilization of feedstuffs is prohibited.
- The use of irradiation on beef products is prohibited.

It is important to remember that all beef, regardless of specific labeling claims, is wholesome and safe to eat. Federal regulations require that all cattle be inspected by a USDA inspector prior to and during harvesting, and that all labeling of beef products is under the strict oversight by USDA inspection personnel in the plant.

Grass-Finished Beef

Grass-finished refers to the feeding regimen for livestock raised on grass, green or range pasture, or forage throughout their life cycle, with only limited supplemental grain feeding allowed. Since it is necessary to assure the animal's well being at all times,

limited supplementation is allowed during adverse environmental conditions. Grass finishing usually results in products containing lower levels of external and internal fat (including marbling) than grain-fed livestock products. Grass, green or range pasture, or forage shall be 80% or more of the primary energy source throughout the animal's life cycle.

Resources

For more information on the history of the beef industry, please visit:

- FactsAboutBeef.com
  http://factsaboutbeef.com/
- Beef industry statistics
  http://www.beefusa.org/beefindustrystatistics.aspx
- Beef Industry Social Responsibility Report
  http://www.beeffoodservice.com/beefindustrywhoweare.aspx
- About Beef Production
  http://beefretail.org/beefproduction.aspx
- Choices of Beef fact sheet
  http://www.beefnutrition.org/CMDocs/BeefNutrition/ChoicesofBeef_Final_web.pdf
- USDA Agricultural Marketing Service
  - Standardization and Technology Division
    http://www.ams.usda.gov/AMSv1.0/LSSTDZ
  - Meat Certification Services
    http://www.ams.usda.gov/AMSv1.0/LSMeatGradingCertificationServices
- USDA Claims Guidance
  http://www.fsis.usda.gov/wps/portal/fsis/topics/regulatory-compliance/labeling/Claims-Guidance
- USDA Labeling Procedures
  http://www.fsis.usda.gov/wps/portal/fsis/topics/regulatory-compliance/labeling/labeling-procedures

Raising Beef Today

BEEF U
a guide for professionals

Contents:

BEEF®
Funded by
the Beef Checkoff.

The Beef Lifecycle

Beef production represents the largest single segment of American agriculture. In fact, USDA says more farms are classified as beef cattle operations (35%) than any other type.

Raising cattle involves numerous farms and operations, each serving a unique role in the process. At each stage, America's farmers and ranchers strive to provide safe, high-quality beef for consumers while following best practices for raising cattle humanely.

1. **Cow-Calf Operation** – Beef production begins with ranchers who maintain a breeding herd of cows that nurture calves every year. When a calf is born, it weighs 60 to 100 pounds. Over the next few months, each calf will live off its mother's milk and graze grass in pasture.
2. **Weaning** – Beef calves are weaned at six to 10 months of age when they weigh between 450 and 700 pounds. These calves are now grass-fed in pasture.
3. **Stockers and Backgrounders** – After weaning, cattle continue to grow and thrive by grazing during the stocker and backgrounder phase.
4. **Livestock Auction Markets** – After weaning and/or during the stocker and backgrounder phase, cows are sold at livestock auction markets. About 1/3 of cows stay on the farm for breeding purposes.
5. **Feedyard** – The next step in beef production is when mature calves are moved to feedyards (also called feedlots). Here, they typically spend four to six months, during which time they have constant access to water, room to move around, and are free to graze at feed bunks containing a carefully balanced diet. Veterinarians, nutritionists and cattlemen work together to look after each animal.
6. **Packing Plant** – Once cattle reach market weight (typically 1,200 to 1,400 pounds and 18 to 22 months of age), they are sent to a processing facility. USDA inspectors are stationed in all federally inspected packing plants and oversee the implementation of safety, animal welfare, and quality standards from the time animals enter the plant until the final beef products are shipped to grocery stores and restaurants establishments.
7. **Food Service and Retail** – The final step in beef production is when beef is shipped and sold in the United States and abroad. In the retail and food service channels, operators take steps to provide consumers with the most safe, wholesome and nutritious products possible. Proper animal care is the responsibility of everyone in the beef production chain. Beef ranchers recognize that ensuring animal well-being is the right thing to do and critical to their operation's success.

From Our Family to Yours

In every state in America, you will find beef ranchers and farmers – hard-working people who are dedicated to their land, their animals, and to providing America and the world with safe, wholesome and nutritious beef.

There are 750,000 farmers and ranchers around the country who raise beef. Of these, 97 percent are family owned and more than half (54 percent) of these farms and ranches have been in the same family for three generations or more. The United States is a

leader in the global beef marketplace, producing 20 percent of the world's beef with just 7 percent of the world's cattle.

Animal Welfare

Cattle farmers and ranchers know that giving animals the proper care, handling and nutrition they deserve makes good business sense. They also recognize that it is just "the right thing to do."

Cattle farmers and ranchers have a tradition — a way of life — that has always included the symbiotic relationship between human caretaker and animal. Cattle farmers and ranchers take pride in exemplary care and husbandry of their animals. Farmers and ranchers use sound animal husbandry practices, based on decades of practical experience and research, to assure the well being of cattle under their care.

Of course, humane treatment of meat animals is not limited just to the producer. The U.S. meat industry is also one of the most heavily regulated industries in the nation.

What is the difference between "Animal Welfare" and "Animal Rights"?

"Animal welfare" and "animal rights" are often confused by both the media and the public. "Animal welfare" may be defined as the use of proper animal husbandry practices by farmers and ranchers that will assure the continuous well being of animals under their care. Perhaps the American Veterinary Medical Association, representing the nation's veterinary professionals, best describes the commitment required of all livestock farmers and ranchers to the welfare of livestock: "Animal welfare is a human responsibility that encompasses all aspects of animal well being, from proper housing and nutrition to preventative care, treatment of disease, and when necessary, humane euthanasia."

On the other hand, "animal rights" is a philosophy based on the premise that humans have no right to use (or "exploit") animals for their own purposes. Proponents of "animal rights" reason that just because we have the power to do so does not give us the right to do so. This philosophy leads its proponents to challenge our right not only to eat animal products, but also our use of animals in biomedical or agricultural research.

What is the Producer Code for Cattle Care?

The Producer Code for Cattle Care, first developed in 1996, represents a comprehensive set of good production practices, which includes the following recommendations for farmers and ranchers to implement in raising and handling cattle:

- Provide adequate food, water and care to protect the health and well being of animals.
- Provide disease prevention practices to protect herd health, including access to veterinary care.
- Provide facilities that allow safe, humane and efficient movement and/or restraint of livestock.
- Use humane methods to euthanize sick or injured livestock and dispose of them properly.
- Provide personnel with training to properly handle, and care for, cattle.

- Make timely observations of livestock to ensure basic needs are being met.
- Provide transportation that avoids undue stress caused by overcrowding, excess time in transit or improper handling during loading and unloading.
- Keep updated on advancements and changes in the industry to make decisions based on sound production practices and consideration to animal well being.
- Do not tolerate persons who willfully mistreat animals. The Code makes it very clear that, "Persons who willfully mistreat animals will not be tolerated."

Developed by animal health experts and cattle producer leaders, the "Cattle Industry's Guidelines for the Care and Handling of Cattle" also serves as a how-to guide for cattlemen.

What is Humane Harvest?

The meat packing process has evolved over the years, based on the latest scientific research, to ensure both humane treatment and food safety. The Humane Slaughter Act of 1978 dictates strict animal handling and slaughtering standards for packing plants. Those standards are monitored by federal meat inspectors nationwide, who are present in packing plants during operation. The USDA assigns veterinarians to more than 900 federally inspected meat packing facilities and monitors their practices every day. FSIS inspectors are empowered to take action in a plant any time they identify a violation of the Act's requirements, which include:

- Animals must be handled and moved through chutes and pens in ways that do not cause stress.
- Livestock must be rendered insensible to pain prior to slaughter. The Act details the methods that must be used to cause insensibility.
  Animals must have access to water, and those kept longer than 24 hours must have access to feed.
- Animals kept in pens overnight must be permitted plenty of room to lie down.
- The dragging of downers or crippled livestock in the stockyards, crowded pen or stunning chute is strictly prohibited.

BSE (Bovine Spongiform Encephalopathy)

U.S. cattlemen have been proactively engaged in the prevention and mitigation of bovine spongiform encephalopathy (BSE) — more commonly known as "mad cow disease"— for more than 20 years, beginning when the disease was first discovered in the United Kingdom in 1986.

What is BSE and how is it spread?

Bovine Spongiform Encephalopathy (BSE), commonly called "mad cow disease," is a degenerative neurological disease of cattle that is caused by misfolded proteins (called *prions*) that build up in the central nervous system (CNS) and eventually kill nerve cells. BSE is spread through certain cattle feed ingredients, which have been banned in the United States since 1997.

BSE typically affects older cattle, typically those more than 30 months of age. The vast majority of cattle going to market in the United States are less than 24 months old.

Experts in human and animal health agree that U.S. beef is safe from BSE because of the progressive steps taken by the U.S. government.

Is U.S. beef and milk safe from BSE?
The U.S. food supply remains the safest in the world, including beef and dairy products. The government has implemented a series of strong measures that protect our food supply. Working together, the beef industry and government have put in place science-based measures that have proven successful in preventing the spread of BSE in the United States. In May 2007, the World Organization for Animal Health (OIE), the leading international body for animal health, designated the United States a "controlled BSE risk" country in recognition of these strong prevention measures.

How is BSE detected?
USDA's ongoing BSE surveillance program tests approximately 40,000 high-risk cattle annually, bringing the total of tested animals to more than 1 million since the program began. A scientific analysis of seven years of surveillance data found the estimated prevalence of BSE in the United States to be less than one infected animal per 1 million adult cattle.

What systems are in place to prevent future cases of BSE in the U.S.?
The U.S. government, in partnership with the industry, has worked for years to build a system that works to protect animal and public health by preventing the introduction of BSE and preparing to prevent its spread. In 1989, the U.S. began a series of bans on imports of animals or at-risk animal products from BSE countries and, in 1997, instituted the ruminant to ruminant feed ban. As mentioned above, the U.S. has in place an ongoing surveillance system targeting the highest risk populations and mandates the practice of removing specified risk materials from all cattle. A report by the Harvard Center for Risk Analysis, released in July 2006, found that removal of these high risk tissues from animals 30 months and over "almost completely eliminated potential human exposure" to BSE.

USDA Public Health Veterinarians examine every single animal before processing and condemn those with any signs of illness. Animals most likely to have BSE are older animals either unable to walk or showing signs of neurological disease. Such animals are banned from the human food supply.

Together, all of these interventions work to protect the U.S. cattle population from BSE.

This disease is fast approaching eradication worldwide. According to USDA, there were only 29 cases of BSE worldwide in 2011, which is a 99 percent reduction since the peak in 1992 of more than 37,300 cases in the United Kingdom.

FMD (Foot-and-Mouth Disease)

Foot-and-mouth disease (FMD) is a serious animal disease that affects animals with cloven (divided) hooves, such as cattle, pigs, sheep, goats and deer. FMD is not a public health concern, nor does it affect the safety of meat or pasteurized milk and dairy products sold in supermarkets. The FMD virus is highly contagious and easily spread among susceptible animals by wind, infected animals, people and vehicles.

FMD is not related to Hand, Food and Mouth Disease (HFMD), a common viral illness of infants and children, nor is it the same as bovine spongiform encephalopathy (BSE), commonly known as "mad cow disease." Dogs, cats, horses and other animals without cloven hooves are not susceptible to FMD.

FMD is not a threat to public health, and is not a human health concern. It also does not affect the safety of meat and milk products. FMD is not related to Hand, Food and Mouth Disease (HFMD), a common viral illness of infants and children. Humans do not get FMD, and animals do not get HFMD. FMD is occasionally confused with Bovine Spongiform Encephalopathy (BSE), or "mad cow disease," which is an unrelated disease of cattle that affects the nervous system.

FMD does not affect companion animals like dogs and cats. Horses are also unaffected. While FMD does not pose a risk to people, the economic consequences of an FMD outbreak in the United States would be dramatic. FMD permanently affects the health and productivity of animals contracting the disease, and therefore, can greatly affect the supply of meat, milk and dairy products. If an outbreak did occur, travel would be restricted in affected areas, creating a negative impact on travel and commerce.

The United States has not had an outbreak of FMD since 1929, thanks to an aggressive program of surveillance and prevention. U.S. veterinary officials perform more than 800 investigations on suspect animals every year, and strict controls are in place on our borders to prevent livestock from being imported to the U.S. from areas where FMD is endemic.

Emergency response planning is also a key part of U.S. efforts to combat FMD. Through drills, exercises and other preparedness activities, emergency personnel are constantly training for an FMD scenario.

America's beef farmers and ranchers know the importance of remaining vigilant on their farms and ranches to prevent the potential introduction and spread of FMD on their operations. Because the livelihoods of beef farmers and ranchers depend on protecting the health of their herds and the safety of their product, they realize the importance of working with and following the direction of local, state and national agencies in the event of an FMD outbreak.

The FMD virus can be killed with heat, low humidity or some disinfectants. To control the spread of the disease from animal to animal and farm to farm, infected animals must be quarantined and often euthanized, and human and vehicle traffic around the perimeter of the farm must be stopped.

Antibiotics

Though the cattleman's primary goal is to prevent illness in the herd, it is natural for some cattle to become sick. Cattle farmers and ranchers make every effort to return sick or injured animals to good health because it is the right and humane thing to do. When antibiotics are necessary to maintain cattle health or treat sick cattle, cattlemen believe in using the smallest and most effective dose of antibiotics made specifically for cattle.

Farmers and ranchers and veterinarians take great care to promptly detect and treat animals with the correct type and amount of medication, providing the most efficient treatment for returning an animal to good health. Careful and judicious use of animal antibiotics is one way America's beef farmers and ranchers help an animal regain or maintain excellent health while producing safe, wholesome and nutritious beef.

What are antibiotics?

Antibiotics, also known as antimicrobials, are medications that fight bacterial infections. Antibiotics made specifically for cattle are used to help an animal regain or maintain superior health and produce safe beef.

What is the approval process for antibiotics?

Antibiotics used in beef cattle production must go through a rigorous testing process before being approved by the Food and Drug Administration (FDA) to assure the safety of cattle as well as beef products entering the food supply. FDA has developed an approval process which stringently manages antibiotic use and specifically monitors for potential resistance. This system helps protect human health while giving veterinarians and cattle farmers and ranchers the tools needed to keep animals healthy. Guidance 152 is an FDA recommended process introduced in 2002 that subjects all antibiotics to a thorough and stringent resistance risk assessment that identifies any potential risk of using a particular antibiotic. The New Animal Drug Application process requires a sponsor to submit an average of 75 studies to prove an antibiotic's safety.

Why are antibiotics used in cattle?

Farmers and ranchers and veterinarians take great care to administer only the amount of antibiotics needed to bring an animal back to health in order to maintain the continued effectiveness of medicines. The Beef Quality Assurance program has been training beef farmers and ranchers about the safe and appropriate use of antibiotics since the 1980s. The National Cattlemen's Beef Association Producer Guidelines for "Judicious Use of Antimicrobials" have been in place since 1987 and specifically outline the appropriate use of these products:

- Avoid using antibiotics that are important in human medicine.
- Use a narrow spectrum of antimicrobials whenever possible.
- Treat the fewest number of animals possible.
- Antibiotic use should be limited to prevent or control disease and should not be used if the primary intent is to improve performance.

What about antibiotic residue?

Cattle farmers and ranchers and veterinarians take great care to use the optimal amount of antibiotics needed to return an animal to good health, and the government supports

this effort through regular testing. By law, no meat sold in the United States is allowed to contain antibiotic residues that violate FDA standards. The Food Safety Inspection Service's National Residue Program (FSIS NRP) is a multi-component, analytical testing program for residues in domestic and imported meat, poultry and egg products. The FSIS NRP has been in effect since 1967 and provides a variety of sampling plans to prevent concerning levels of residues from entering the food supply. The USDA Food Safety and Inspection Service (FSIS) conducts tests to ensure beef products entering the food supply do not contain antibiotic levels that violate FDA standards. The program also provides national data on the occurrence of chemical residues to support risk assessment, enforcement and educational activities.

Growth Promotants

America's cattle farmers and ranchers use growth promotants to safely produce more of the lean beef that consumers demand while using fewer resources, like land and feed. The use of growth promotants such as growth hormones in cattle or feed additives like beta-agonists can help cattle convert the nutrients in their feed to lean muscle

Sometimes referred to as cattle growth hormones or steroids, these production technologies have been used for nearly 60 years to help cattle efficiently convert their feed into more lean muscle. The safe and judicious use of growth promotants in beef production is assured by the product approval procedures required by FDA, as well as by the on-going testing policies and procedures administered by the Food Safety Inspection Service (FSIS), a division of the U.S. Department of Agriculture (USDA). FSIS regularly tests for residues in meat to assure there is no misuse of growth promoting products.

What are growth promotants and how are they administered?

Growth promotants are typically small pellets implanted under the skin on the back of an animal's ear. The pellets release tiny amounts of growth promoting hormones, which safely dissolve as treatment is completed. Growth promotants are approved by the Food and Drug Administration (FDA).

Why are growth promotants used in beef production?

For more than 60 years, growth promotants have helped cattle farmers and ranchers safely meet the increasing consumer demand for lean beef. Typically, cattle raised with growth promotants can have up to 18 percent more lean muscle than other cattle, with an equal decrease in fat.

Do those hormones ever end up in the beef?

There is very little difference in the amounts of estrogen found in beef from cattle raised with or without growth promotants (1.9 versus 1.3 nanograms per serving). FSIS regularly tests for residues in meat that would indicate misuse of growth promoting products.

Is the use of growth promotants safe?
Yes. The use of hormones in cattle production has been declared safe by scientific organizations world wide including the Food and Agriculture Organization/World Health Organization, the European Commission Agriculture Division and the Codex Committee on Veterinary Residues. In addition, growth promotants are approved by the Food and Drug Administration (FDA) after a thorough review of data from rigorous scientific tests, similar to the tests the FDA requires for human drug approval.

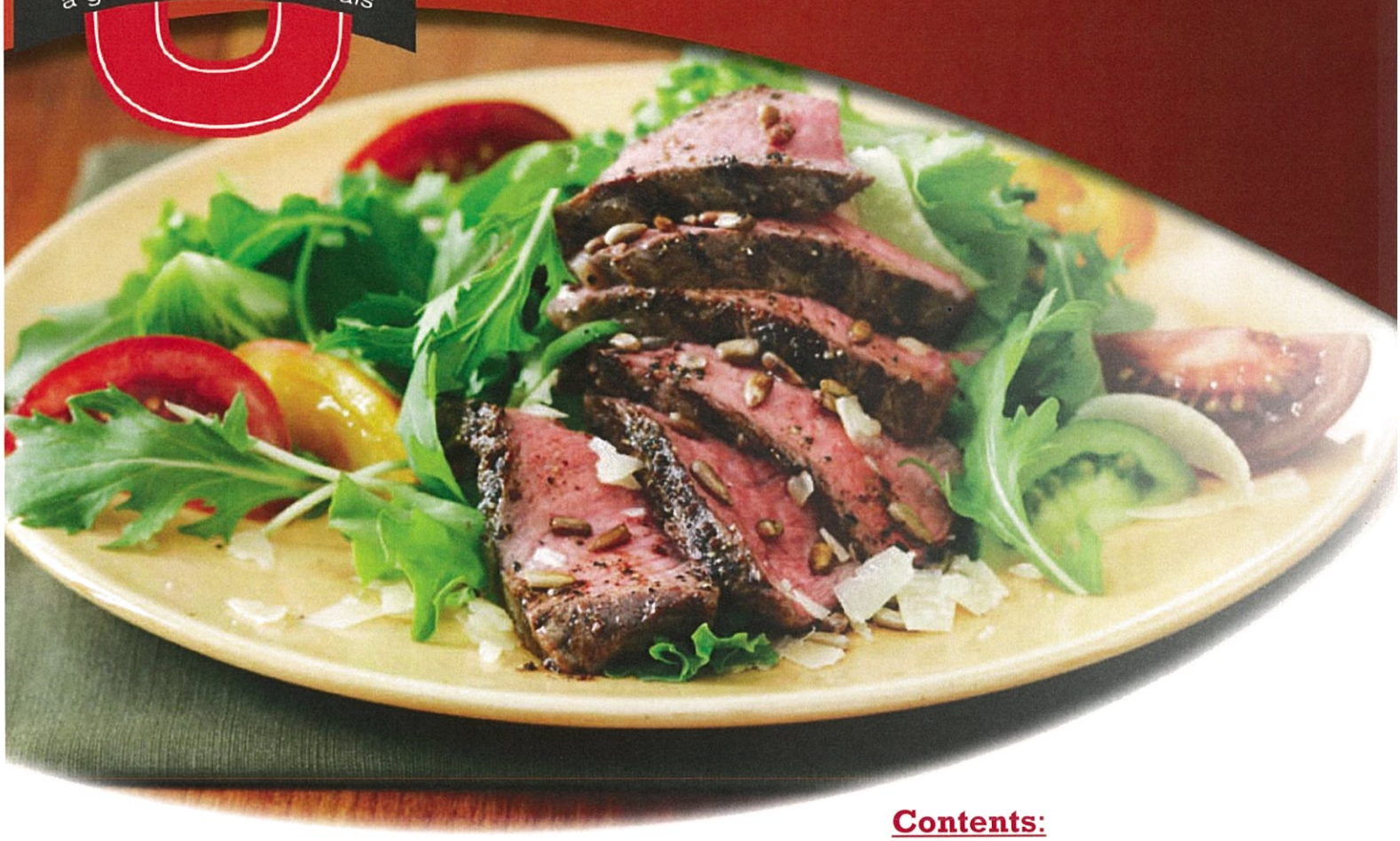
What about the affects on my health and the environment?
Growth promotants have been used safely in agriculture for more than 60 years. Beef farmers and ranchers feed their animals the best science-based diet available and use humane animal husbandry practices. Growth promotants allow cattle farmers and ranchers to deliver leaner beef and use fewer acres for grain, which is better for the environment.

Resources
For more information on raising beef today, please visit:

- **Facts About Beef – Debunking Myths About Beef**
  http://FactsAboutBeef.com/
- **Growth Promotant Fact Sheet**
  http://factsaboutbeef.files.wordpress.com/2012/11/growth-promotant-fact-sheet-4.pdf
- **Twitter Handles**
  @BeefFacts
  @BSEInfo
- **Cattlemen's Stewardship Review**
  http://www.beefretail.org/beefindustrysocialresponsibilityreport1.aspx
- **Beef Quality Assurrance**
  http://www.bqa.org/
- **BSE Info**
  http://bseinfo.org/
- **Foot and Mouth Disease (FMD) Info**
  http://www.fmdinfo.org/
- **USDA Food Safety and Inspection Service (FSIS)**
  http://www.fsis.usda.gov/wps/portal/fsis/topics/inspection
- **U.S. Food and Drug Administration (FDA) – Animal and Veterinary**
  http://www.fda.gov/AnimalVeterinary/default.htm

To Market

BEEF U
a guide for professionals



Contents:

BEEF®
Funded by
the Beef Checkoff.

Inspection

The meat industry, with more than a century of regulatory history, is considered by many to be the most highly regulated segment of the food industry. The U.S. meat inspection program began in 1891 when Congress passed a general meat inspection act, providing for the inspection of cattle. Subsequently, the Federal Meat Inspection Act of 1906 made inspection mandatory for all meat that crossed state lines. More recently, the Wholesome Meat Act of 1967 required that inspection of meat sold within a state under an approved state inspection program meet inspection requirements at least as stringent as those of the federal system.

Federal meat inspection is the responsibility of the Food Safety and Inspection Service (FSIS), the public health agency in the U.S. Department of Agriculture (USDA). State meat inspection is the responsibility of each state's government with partial funding support provided by the federal government. FSIS develops rules and regulations for the production of safe foods, ensuring that meat and poultry products are safe, wholesome and correctly labeled.

The beef industry, however, also takes responsibility for producing the safest products possible. The responsibility for food safety begins with the livestock producer, continues through wholesaler/retailer operations (including meat inspection) and ends with the foodservice operator or the consumer who is ultimately responsible for the food's preparation.

Providing the safest beef in the world is the number one priority of America's beef producers. From pasture to plate, each partner in the beef production chain has made significant strides in lowering the rate of foodborne illnesses and remains committed to the fight against foodborne pathogens such as E. coli O157:H7. Producers have invested more than $22 million in beef safety research since 1993, leading to the establishment of best practices which serve as a road map in reducing foodborne pathogens. The steady decline in incidence rates of these pathogens is evidence that the beef supply is safer than ever.

To assist producers in food safety programs on ranches and farms, the National Cattlemen's Beef Association (NCBA) has initiated the Beef Checkoff-funded "Beef Quality Assurance Program" to educate farmers and ranchers on the proper way to administer animal health products and to address other food safety issues. Farmers and ranchers take their food safety responsibilities seriously when raising livestock, including administering approved animal health products.

Similarly, foodservice operators and retailers must use safe food preparation and handling practices at all times, to assure not only continued confidence from their customers, but also to avoid potential fines or other legal actions. Several industry trade organizations, including NCBA on behalf of the Beef Checkoff Program, provide educational and training programs to assist foodservice and retail establishments in meeting their food safety responsibilities.

Federal Meat Inspection

The Meat Inspection Program assures that only meat from healthy animals enters the food chain, and assures that facilities and equipment meet sanitation standards. However, the Meat Inspection Program also includes:

- Inspection of meat at various stages of processing
- Temperature monitoring for both fresh and cooked meat
- Review of packaging and labels used for fresh and processed meat
- Control and monitoring of the use of approved food additives
- Control and monitoring of imported meat

Since meat inspection is mandatory for all beef sold at the foodservice and retail levels, U.S. taxpayers pay for these inspection programs. Therefore the cost of inspection is not included in the cost of the meat purchased.

Cattle and their carcasses are examined for wholesomeness before, during and after the harvesting process by an in-plant FSIS inspector.

Inspectors view organs, lymph nodes and other tissues for abnormalities. If wholesomeness is questionable at any time, the inspector will retain a beef carcass or beef products for further testing. If a carcass or any edible part from an animal is found to be unwholesome, it is condemned and placed in a separate area until it can be disposed of properly, thereby preventing its entrance into the food chain.

Several other tests are routinely performed by inspectors to assure the safety of the meat supply. For example, by using statistical procedures FSIS is able to check for more than 100 unauthorized compounds and monitors approximately 50,000 carcasses per year. If misuse is found, the carcass is traced back to its source. In addition to possible legal action against the source, animals subsequently marketed from the establishment where the misuse or error occurred are closely monitored until the problem is completely corrected.

When beef or beef products have passed the meat inspection process, a round inspection legend containing an abbreviation "U.S. Inspected and Passed" and the official establishment number assigned to that specific processing plant is stamped on each primal cut (with edible ink). If a beef cut or product is packaged in a box, the inspection stamp is placed on the outside of that container. The stamp must also be placed on every prepackaged processed meat product that has been federally inspected.

State Meat Inspection

Foodservice operators and retailers typically purchase beef and beef products that have been processed under the Federal Meat Inspection program, because most distributors sell products in several states, if not nationally. However, 28 U.S. states do maintain federally-approved state inspection programs. A processing plant that sells meat products exclusively within its state may operate under a state regulated inspection program, which must meet the same criteria as USDA (federal) inspection. State meat

inspection stamps also use edible ink and a symbol that is often the outline of the shape of that state, with the official establishment number within the stamp.

Kosher Inspection

The term "kosher" is derived from the Hebrew word meaning "fit and proper" or "properly prepared." Kosher meat is processed under the supervision of persons authorized by the Jewish faith to meet the requirements of the Mosaic and Talmudic laws.

While the kosher inspection procedures are independent of the requirements for federal or state meat inspection, kosher meats must also be inspected concurrently by federal or state meat inspectors and must also meet the federal/state inspection requirements prior to sale.

A primary requirement for kosher meat is that it comes from an animal that has split hooves and chews its cud. Since hogs do not meet this requirement, ham, bacon and other pork products cannot be kosher.

A specially trained rabbi must perform the harvest of the animal. Following carcass cutting, the fresh meat is soaked and salted on all parts, and the meat is then allowed to drain. Salting is critical to the koshering process, since it draws out the remaining blood from the meat as required by biblical law (Leviticus 17:14, "You shall not eat the blood of any creature, for the life of every creature is blood; whoever eats it shall be cut off.") Cuts of meat from the hindquarter are not available as kosher meat because the sciatic nerve and its adjoining muscles may not be eaten.

Once the beef carcass has met both kosher and federal/state inspection requirements, the kosher inspection stamp is applied to the appropriate parts of the carcass. The kosher designation may then be applied to cuts and packages of kosher products.

Halal Beef

Halal is the Arabic word meaning "lawful" or "permitted" and is the dietary standard for practicing Muslims under Islamic law. The USDA has had a policy on Halal labeling in effect since 1996. The general requirements for Halal state that an animal must be humanely treated en route to and at the processing plant. The throat must be slit in a specific way, while the word "Allah" (God) is said. The blood must then be drained from the body.

Essentially, all foods are considered Halal except for the following:

- Swine/pork and its by-products
- Animals improperly harvested
- Animals killed in the name of anyone other than Allah (God)
- Alcohol and intoxicants
- Carnivorous animals, birds of prey and land animals without external ears
- Blood and blood by-products
- Foods contaminated by any of the above

The requirements for Halal meat are that an animal or poultry has to be harvested in a ritual way known as Zibah. Zibah requires that animals be alive and healthy at the time of harvest, that a Muslim perform the ritual and that the carcass be drained of all blood. In addition, there are other rules and edicts that have to be followed, including Halal processing must not be done anywhere where pigs are processed (as pork is forbidden), the animal must be fed and given water prior to harvest, one animal cannot see another animal being harvested and, whenever possible, the animal should face Mecca.

Products prepared by federally inspected meat packing plants identified with labels bearing references to Halal or Zabiah Halal must be handled according to these and other Islamic law and under Islamic authority.

Grading

The acceptability and value of beef carcasses is determined primarily by: (1) the quality of the beef, and (2) the yield of saleable beef. U.S. Department of Agriculture (USDA) grades for beef carcasses provide a system of sorting a rather heterogeneous (varied) supply of beef into smaller, more homogeneous (uniform) groups (i.e., Quality Grade Choice-Yield Grade 2) for marketing. These grades promote uniform market reporting, provide a tool for expressing and comparing value and prices, and enhance foodservice and consumer marketing.

Established in 1927, the USDA meat grading program, administered by the Agricultural Marketing Service (AMS) of the USDA, sets "standards" (which are written descriptions) of quality and cutability (yield of edible meat) that are used in buying and selling meat. These standards allow livestock owners to gear production for specific grades based on market demand. Packers can segregate carcasses and cuts into groups of similar grades and retailers can buy the grades of meat appropriate for their markets. For consumers, grading provides assurance that the product conforms to an established set of standards that predict palatability. Today, in larger plants computer imaging technology assists USDA graders.

There are federal grade standards for beef, veal, pork and lamb. However there are more grade designations for beef carcasses due to the wider variation in age and weight of cattle compared to other meat animals. The meat grading standards designate eight "quality" grades for beef (Prime, Choice, Select, Standard, Commercial, Utility, Cutter and Canner) and five "yield" grades (depicted numerically from 1 to 5).

Only beef carcasses (not individual cuts) are graded. However, this grade designation is carried forward to all wholesale/primal and retail cuts derived from a graded carcass. Unlike meat inspection, which is mandatory, participation in the meat grading program is voluntary, and the cost of this service is paid for by the meat packers. This cost may be included in the cost of meat purchased by consumers or foodservice operators.

Today, approximately 95% of all federally inspected slaughter gets a grade. Fed cattle are young cattle marketed out of feedlots after an average of 100-150 days on a grain based diet.

Of the carcasses graded in the U.S., the quality grade distribution is approximately 3% Prime, 57% Choice and 40% Select. The yield grade distribution is approximately 11% Yield Grade 1, 40% Yield Grade 2, 40% Yield Grade 3, and 9% Yield Grades 4 and 5. Less than 1% of older cattle that could qualify for Commercial or Utility are graded.

Since beef grading is a voluntary program, packers are not required to quality grade and/or yield grade every carcass. Therefore, the packer has the option to quality grade only, to yield grade only, to grade for both quality and yield grades, or to not grade a carcass at all.

The packer may instruct the USDA grader to officially quality and/or yield grade only those carcasses meeting specific marketing needs. Often a packer will specify, for instance, that only USDA Quality Grade Prime, Choice and Select and Yield Grade 1, 2, and 3 be identified with a grade stamp. A carcass that is officially graded is "rolled" with a blue ink stamp or "shield" (using edible ink) to designate the grade. The stamp is rolled along the back from the round to the chuck and over the clod and brisket regions.

"No roll" is a term given to those carcasses that do not officially receive a grade stamp "roll" at the packing facility. Therefore, they are not rolled with either an official quality or yield grade stamp. There is no official USDA grade standard for "no roll," nor is there an official "no roll" stamp.

With the increased use of the Select grade in both retail and foodservice operations, and since carcasses can have a combination of grading options (yield, quality or both), fewer carcasses are remaining as "no roll" beef. However, any carcass of any quality or yield grade may be a "no roll" carcass, if the packer decides not to have a grading roll applied to it. Therefore, purchases from a "no roll" sales category are less likely to be as uniform in quality or yield as those carrying an official USDA grade designation.

Carcasses from the lower beef quality grades (Commercial, Utility, Cutter and Canner) are normally not graded, since they are seldom sold directly to the public. The meat from these carcasses is both wholesome and nutritious, but because these cuts are less tender, they are commonly used in ground beef, sausages and other manufactured meat products. However, some of the more tender cuts (ribs and loins) of the lower grades may be tenderized and used in restaurants that feature lower-priced beef entrees.

As will be seen in the following sections, carcass fat plays an important role in determining both quality and yield grades of beef carcasses. There are several types of fat associated with a beef carcass:

- Marbling, or intramuscular fat, is the fat deposited within the muscle
- Subcutaneous, or external fat, covers the outside of the carcass
- Seam fat, or intermuscular fat, is the fat lying between the muscles
- Internal fat (KPH - kidney, pelvic, heart) protects the internal organs

Marbling is an important factor in determining the quality grade of a beef carcass, typically having a positive effect on the palatability of the cooked meat. However, subcutaneous, seam and internal fats, all factors in determining the yield grade of a carcass, each have a negative impact on the final yield grade.

Quality Grading

This part of the grading system provides the purchaser with an estimate of the palatability, or taste appeal (tenderness, juiciness and flavor), of the cooked meat from a carcass. The quality grade is determined by evaluating the following characteristics of a beef carcass:

Marbling

"Marbling" (intramuscular fat) is the small flecks of visible fat on the cut surface of fresh meat. In determining the grade of a beef carcass, the marbling is evaluated on a cut surface of the Ribeye muscle between the 12th and 13th ribs.

The amount and distribution of marbling is a major criterion for grading beef. The marbling fat melts during cooking, thereby increasing the juiciness of the meat, contributing to its flavor and increasing its perceived tenderness.

The "Official United States Standard for Grades of Carcass Beef" recognizes ten degrees of marbling. The six common degrees of marbling are -Moderately Abundant, Slightly Abundant, Moderate, Modest, Small and Slight.

Maturity

The younger the animal the more likely the meat will be tender, because as the animal matures, the connective tissue increases in amount, becomes tougher, and will not break down as easily when cooked. Younger cattle can qualify for Prime, Choice, Select or Standard. Meat from older cattle (over 42 months of age) can qualify only for Commercial, Utility, Cutter or Canner grades.

During the grading process, the USDA grader does not have information as to the exact age of the animal from which the carcass originated. Consequently, the grader determines the physiological maturity of the animal on the basis of skeletal characteristics and the color and texture of the Ribeye muscle. The bones of young animals are soft, porous and red. As the animal gets older, bones and cartilage ossify, that is, they grow harder and turn white.

The color and texture of the Ribeye muscle is also considered when determining the final maturity group for carcasses. Young cattle have muscle that is bright cherry-red and finely textured. The color of beef becomes progressively darker and the texture coarser as the animal matures.

In determining the physiological maturity of the animal from which the carcass originates, the grader places each carcass into one of five maturity groups: A, B, C, D and E. A and B maturity groups represent carcasses from younger cattle (under 42 months of age), while C, D, and E maturity groups represent carcasses from older cattle (over 42 months of age).

Having determined the maturity group (i.e., A, B, C, etc.) and the degree of marbling (i.e., Modest, Small, Slight, etc.), the grader uses this chart to determine the relationship between the two factors, thereby arriving at the final Quality Grade.

For instance, a carcass from a younger animal in the "A" maturity group with a "Modest" degree of marbling would be designated as a "USDA Choice" carcass. However, a "C" maturity carcass with the same degree of marbling ("Modest") would be a "USDA Commercial" carcass.

Yield Grading

Yield grading is accomplished at the same time as quality grading and is performed by the same grading personnel. However, yield grading is not directly related to quality grading, and serves a different purpose for the industry.

Yield grades identify differences in carcass cutability. Cutability is defined as the amount of saleable meat obtained from the carcass as boneless, closely trimmed retail cuts from the round, loin, rib and chuck.

Yield Grades are especially useful at the purchasing level since they can help the purchaser identify which carcasses or cuts will provide the greatest yield of edible meat per pound. The lower the yield grade number (i.e., Yield Grade 1), the smaller the cutting losses, the less seam fat will be found within individual cuts, and the higher the cooking yield. Yield grades are of lesser direct value to the retail consumer since retail cuts are usually trimmed of excess fat prior to presentation for sale.

However, yield grades can affect all purchasers of fresh beef, because cutting losses are an important factor in determining product price, and in turn, can directly impact foodservice and retail pricing strategies.

There are five USDA Yield Grades, identified numerically as "USDA Yield Grade 1" to "USDA Yield Grade 5". A Yield Grade 1 carcass has the greatest amount of saleable meat while a Yield Grade 5 carcass has the least.

Since it is not practical to cut and fabricate every carcass into muscle, fat and bone to determine the boneless retail yield, a quick, repeatable and reliable procedure must be used to estimate carcass cutability. To do this, the USDA grader uses four carcass characteristics:

1. External fat thickness measured in tenths of an inch at a specific point over the Ribeye muscle at the 12th rib (the same location as marbling is determined for quality grading)
2. The amount of internal fat (kidney, pelvic and heart fat) expressed as a percentage of the carcass weight (%KPH fat)
3. The area of the Ribeye muscle (in square inches) again measured at the 12th rib
4. The carcass weight (an actual measure of carcass weight in pounds taken on the harvesting floor)

Fat thickness over the Ribeye and percent of kidney, pelvic and heart fat are indicators of total carcass fatness. As these measurements increase, the yield grade number increases (moves closer to Yield Grade 5), and the carcass becomes less desirable.

The Ribeye area is an indicator of carcass muscularity. As the Ribeye area increases, the numerical yield grade decreases (moves closer to Yield Grade 1) and the carcass becomes more desirable.

Although USDA has developed a formula for calculating the yield grade, as a practical matter the grader relies upon his or her experience and training to make this determination. However, the grader may check using the formula occasionally when requested to do so. The same process holds true for the USDA grader when determining the USDA Quality Grade.

USDA Yield Grades are "rolled" onto the beef carcass at the same time as the USDA Quality Grade. However, the Yield Grade number placed on the carcass is "rounded down" in all cases by dropping any decimal. Therefore, a calculated Yield Grade of "3.1" for one carcass and one of "3.8" for another would result in both carcasses being rolled as "USDA Yield Grade 3" for marketing purposes.

Certification

Although "branding" is an increasingly popular concept in merchandising beef today, it is certainly not a new concept. Decades ago, recognized brands were commonplace, and names such as "Swift Premium" and "Armour Star" reflected a certain level of quality that was both understood and trusted by most consumers.

In today's increasingly competitive marketplace, however, it is difficult for beef marketers with less recognizable names to introduce branded products that will instill immediate customer confidence. However, by structuring such programs to include elements of federal programs that are both recognized and trusted by customers, the opportunity for success is enhanced.

The Agricultural Marketing Service (AMS) of the U.S. Department of Agriculture (USDA) provides voluntary certification services to assist in the marketing of branded beef programs. This service provides for certification of specific carcass characteristics that are contained within each program's published requirements. This AMS certification provides confidence throughout the marketing chain that the claims made were substantiated by independent third party oversight. AMS currently has approved certification services for over 40 beef programs, with each beef certification program varying in the level of claims for "quality."

The descriptions of these certified beef programs are available for review to determine if one or more meets specific needs with the confidence that the USDA has certified the claims made in each program.

Aging

"Aging" refers to beef that is held under controlled refrigerated conditions for a period of time in order to maximize the tenderness of the product, and is used most commonly in loin and rib cuts. Aging occurs "postmortem" (after harvesting) as a natural enzymatic process in all muscles, and takes place whether beef is vacuum packaged or is in the form of carcasses or whole cuts.

Two types of postmortem aging are used commercially:

"Dry aging" refers to longer storage of carcasses or beef wholesale cuts at refrigerated temperatures with no protective packaging. It is critical with dry aging to carefully control refrigeration conditions to minimize microbial growth and dehydration losses.

Aging in a refrigerated room at 32 – 34°F and 80-85% relative humidity, with air velocity of 0.5 to 2.5 m/sec, is typical. Dry aging under these conditions is sometimes continued for 21 to 28 days, and may impart a distinct "aged" flavor considered desirable by some consumers.

"Wet aging" refers to storage at refrigerated temperatures in a sealed vacuum packaged bag. While relative humidity and air movement are not factors when wet aging, strict temperature control is important, and should be maintained at 32 - 36°F. Foodservice operators or retailers who desire to further age beef received in vacuumed bags in their refrigerators should keep in mind that if they open these bags they are, in effect, "dry aging" the cuts, and should therefore maintain the appropriate dry aging conditions.

Both types of aging have the same effect on tenderness, since the natural enzymes in the muscle continue to break down the connective tissue and enhance meat tenderness in either case.

Wet aging is the typical method of aging beef today. One of the major differences between dry and wet aging is the microbial growth that may occur on the product during dry aging. As might be imagined, prolonged storage in the presence of air (dry aging) creates an excellent environment for bacterial growth and dehydration. The product loses 5% to 20% of its weight because of dehydration and the required trimming if the dry aging procedure is used. Vacuum packaging of beef, on the other hand, minimizes the ability of spoilage bacteria to grow and virtually eliminates trimming losses. Aging beyond 28 days has little benefit in enhancing beef palatability, and, in the case of dry aged product, may be detrimental due to increased microbial and dehydration losses. Aging can also be affected by individual muscle and by USDA Quality Grade.

Research in the past had always been conducted on beef subprimals and not individual muscles. National Cattlemen's Beef Association on behalf of The Beef Checkoff commissioned researchers at Colorado State University (2006 S. L. Gruber, K. E. Belk, J. D. Tatum, J. A. Scanga, G. C. Smith) to conduct a study to characterize postmortem aging (wet aging) of fresh (never frozen) individual beef muscles of two different quality grades (upper 2/3 USDA Choice and USDA Select). Overall findings of this study

suggest that tenderness of cooked beef was affected by individual muscle, USDA Quality Grade and length of aging. In general, USDA Select took longer than USDA Choice (upper 2/3) to complete the majority of all aging response.

Packer/Processor Enhancements

Most consumers enjoy beef "just the way it is" – that is, as tender and juicy cooked steaks, roasts or ground beef. Traditional methods of fabricating carcasses into individual steaks and convenient sized roasts and separating more tender from less tender cuts have contributed to great eating experiences for decades.

However, as consumers' tastes have evolved and our society has been introduced to an ever-growing variety of ethnic cuisines, today's discerning customer often searches out those establishments that provide a variety of dining options.

Progressive packers and processors are enhancing beef products at the processing level. By using items such prepackaged, ready-to-cook entrees, foodservice operators and retailers can expand offerings without extensive modifications to facilities or staff.

One popular enhancement is the use of "marinating" technologies. The food industry defines a marinade as "... a mixture in which food is soaked, massaged, tumbled and/or injected to improve taste, tenderness or juiciness, or to impart other sensory attributes, such as color or flavor." All prepackaged products must disclose on the label the amount of marinade and the ingredients used.

Marination technology incorporates four basic elements: 1) closely trimmed beef, 2) a marinade solution, 3) a marination process and 4) a packaging system. The key difference among various marination processes is the degree of penetration and dispersion of the marinade, the amount of marinade absorbed, and the extent of tenderizing. A processor may use a variety of equipment (injectors, vacuum tumblers, vacuum massagers, etc.) that promote uniform distribution of marinade in beef. An unevenly distributed marinade can result in discoloration, a rubbery texture, pockets of strong flavor and/or uneven cooking.

The ingredients in commercial marinating solutions perform specific functions. Primary ingredients – water, salt and phosphates – affect texture and water-holding capacity. Secondary ingredients – seasonings, acids and sweeteners – impart unique flavors.

Primary marinade ingredients increase the meat's water-holding capacity. Meat proteins, which make up about 20% of beef's composition, can hold approximately four times their weight in water. Salts and phosphates enhance meat's ability to hold water. This results in less moisture loss during cooking, thereby increasing the juiciness and perceived tenderness and can help minimize the impact of overcooking.

Secondary ingredients (e.g., seasonings, sodium lactate, potassium lactate, sodium citrate, etc.) impart specific flavors, visual appeal and can provide extended shelf life. Trendy ethnic cuisines, such as Asian, Caribbean and Nuevo Latino, often influence marinade flavors. Today's standby marinades, such as lemon pepper and teriyaki, are being joined by chili peppers, cilantro and other herbs. Care needs to be taken when adding seasonings to beef to complement its flavor. Unlike chicken and pork, beef has a

distinct, stand-alone flavor that your customers crave. Successful marinating depends on a balanced formulation and an effective processing technique. The challenge is to avoid certain pitfalls that could ultimately impact foodservice operations and customers at home.

For example, maximizing water-holding capacity can result in a product with a rubbery texture and/or high sodium content. A rubbery texture can be minimized by incorporating less of certain ingredients (such as phosphates and salt) and by reducing the time and action in mixing and tumbling. This, however, can lower the water-holding capacity, which may result in excess purge. Therefore, the amount of water may also need adjusting.

Citrus flavors, while popular, can also be tricky due to their acidity. The water-holding capacity of beef proteins is best at a neutral pH. If the pH of a marinade is too low, proteins break down rapidly and beef texture may become soft and mushy.

Achieving a consistent marinade is challenging due to the number of variables involved. Water purity, mixing procedures, temperature, treatment process, packaging and batch size affect marinade success. Even the age, moisture content and specific cut of beef can affect product consistency.

The best approach in process development, therefore, includes thorough testing of each specific formulation and process to meet the desired effect of the marinade. Ingredients and processes that optimize the quality of some products may reduce the performance of others. In the final analysis, perfect marinade depends on the desired final product.

Benefits of Commercially Marinated Beef:

- Enhances juiciness and minimizes consequences of overcooking
- Enhances flavor and tenderness
- Improves consistency
- Provides a vehicle for incorporation of flavors and seasonings
- Can be used to incorporate ingredients that increase shelf life

Dark-Cutting Beef

Dark-cutting beef is beef with an abnormally dark lean color that is generally the result of reduced glycogen (muscle "sugar") content in the muscle at the time the animal is harvested. This causes a higher muscle pH (less acid) after the carcass is chilled. This condition most often occurs as a result of excessive animal stress prior to harvest, although other stressful conditions (such as severe weather changes) may also cause dark-cutters.

The dark color caused by this condition can range from barely evident to very dark. A USDA grader may lower the quality grade up to one full grade because of the dark-cutting condition. Although the incidence in steers and heifers is relatively low (about a 2%), it is estimated that dark cutters cost the beef industry over $5 for every fed steer/heifer marketed.

While the color of raw muscle cuts may be aesthetically unacceptable to the eye of the consumer, the "dark-cutting" condition does not affect the eating quality of the cooked lean. Dark-cutting beef is considered acceptable for many foodservice applications, because the beef appears the same after cooking as "normal" colored beef, while it is not typically accepted at retail where shoppers would see the product uncooked.

One caution in utilizing dark-cutting beef, however, is that it does not have a shelf-life as long as other beef when it is held fresh or thawed. Therefore, care should be taken to keep it chilled until ready for cooking, and storage time should be kept to a minimum.

Meat Color

The color of fresh meat is related to a specific protein in muscles called "myoglobin." Myoglobin is a protein very similar to hemoglobin, the oxygen-carrying protein in blood. In fact, myoglobin serves as the protein in muscles that receives oxygen from the hemoglobin blood, and makes this oxygen available to the muscle tissues.

Myoglobin and hemoglobin are very similar in that each is an iron-containing protein. However, hemoglobin has four times the iron content as myoglobin, which enhances its ability to transport oxygen in the blood throughout the body. The amount of myoglobin in the muscles of different animals is what gives various meats their distinctive fresh colors.

Beef muscle that has not been exposed to air (oxygen) is a purplish red color. The foodservice operator or customer will recognize a color change with vacuum packaged beef cuts. In the vacuum bag the color appears to be purple-red. However, once it has been exposed to the air, the color brightens to a bright, cherry-red.

In both cases, the myoglobin in the muscle picks up oxygen from the air (called "oxygenation") resulting in the bright cherry-red color. This color change is often referred to as "bloom." Other color changes can also occur to myoglobin in meat. For instance, when fresh meat is exposed to oxygen in the air for a longer period of time (perhaps several days) the surface may change to a "brownish" color. In this case, a chemical change (called "oxidation") occurs to the myoglobin resulting in the brown surface color. Since these cuts may have been exposed for several days, they may also be susceptible to the onset of microbial spoilage.

Another familiar color change that is associated with meat cookery is that Myoglobin, along with other proteins in meat, "denatures" when cooked. As the myoglobin gradually denatures with increasing temperatures, the red color progressively changes to a browner cooked meat color. The higher the internal temperature of the meat the less red the cooked meat becomes, reflecting the "degree of doneness" of the cooked meat.

Iridescence in raw and cooked beef is a naturally occurring phenomenon that does not affect quality or palatability. It appears as a blue-green or orange-red color in some raw and cooked beef. It's associated with the interference of light waves reflected off the meat's surface. Factors such as the beef's surface texture and color, and the type, wavelength and angle of the light affect the intensity of the iridescence. Smooth meat surfaces may exhibit iridescence more vividly than rough surfaces.

Beef Color Dynamics

Sometimes cooked fresh meat remains red on the surface or retains a red interior despite it being fully cooked. A classic example is meatloaf that remains pink in the center even when fully cooked or the appearance of an outside red ring on smoked or grilled meats. While all of the explanations are not known, some scientifically proven causes for this phenomenon are: (1) traces of nitrates in water supplies (when fresh meat comes in contact with this water the nitrate reacts chemically with the fresh meat pigment and results in the formation of the same pigment as when the food processors intentionally adds nitrates to produce cured meats); (2) traces of nitrites and nitrates in vegetable foods (fresh meats cooked in the presence of celery, turnips and other vegetables could be expected to show some red color depending on the soil in which the vegetables were grown and even lack of freshness in the vegetables – as vegetables deteriorate, the nitrate content lessons and more nitrite is formed); and (3) the use of pepper solution (which may contain a trace of natural nitrate). It has also been suggested that the presence of carbon monoxide in heating gases, exhaust gases and furnaces has led to the red ring on cooked meats.

Resources

For more information on how beef gets to market, please visit:

- Beef Product Enhancement Research
  http://www.beefresearch.org/productenhancementresearch.aspx
- Industry Guide for Beef Aging
  www.beefresearch.org/executivesummaries.aspx
- USDA Food Safety and Inspection Service
  http://www.fsis.usda.gov/
- USDA Agricultural Marketing Service – Grading, Certification and Verification
  http://www.ams.usda.gov/AMSv1.0/ams.fetchTemplateData.do?template=TemplateA&navID=GradingCertificationandVerification&leftNav=GradingCertificationandVerification&page=GradingCertificationAndVerification&acct=AMSPW

Handling & Storage

BEEF U
a guide for professionals

Contents:

BEEF®
Funded by the Beef Checkoff.

The Big 4

Your customers expect and deserve their choices to be the freshest and safest foods available, and handled in a manner that will assure an enjoyable eating experience, whether in a restaurant or prepared at home. It is your responsibility to provide such assurances, and this process begins the moment your beef products are delivered.

Today, the vast majority of foodservice operators and retailers purchase beef from suppliers either as pre-cut, ready-to-use fresh or frozen steaks and roasts, or vacuum packaged subprimals, which are portioned into steaks and roasts on site. Beef is also commonly purchased as ground beef, fresh or frozen patties or ground beef chubs.

In order for the product to remain fresh and safe, as well as to avoid spoilage, critical handling and storage practices must be followed throughout the supply chain, including in the storage and preparation areas. Physical and biochemical changes continue to occur during storage and processing, even for beef in a vacuum bag. These changes can affect the safety of the product as well as its palatability characteristics, including flavor and tenderness.

In simplest terms, you can follow four practices to assure the freshness and safety of beef to be used in food preparation:

- Keep it clean
- Keep it cold
- Keep it covered
- Keep it moving

Time, temperature and sanitation—these three critical factors are fundamental in assuring a safe eating experience for customers.

Keep it Clean

This applies not only to the preparation area, but to the receiving and storage areas as well. Use sound sanitation practices on the loading dock and in the freezer and cooler storage areas to reduce the exposure of potentially harmful bacteria to boxes and packaging that could be spread to the beef. Watch for wet boxes, which can be a sign of leakers (vacuum bags with a broken seal). In storage areas, stack boxes off the floor and away from walls to ensure good air circulation.

- Wash hands thoroughly, immediately before and after handling raw meat and poultry.
- Clean and sanitize work surfaces and utensils before and after coming in contact with raw meat and poultry.
- Store properly wrapped raw meat products on lowest shelf in the cooler to avoid contamination of other foods with meat drippings.
- Keep raw and cooked products separate during preparation. Never place a cooked product on a surface where a raw product has been without first washing, rinsing, and sanitizing the area.

Keep it Cold

Using a thermometer and performing a visual inspection, check product for temperature and signs of temperature abuse before accepting delivery. Immediately move fresh and frozen beef to appropriate storage areas. NEVER LEAVE FRESH OR FROZEN BEEF ON THE LOADING DOCK UNATTENDED. Even small temperature changes can impact the safety, quality and palatability of the product later.

Keep cut subprimals under refrigerated conditions, and if possible return covered cuts to the cooler if they are not to be prepared or portioned immediately. Follow safe thawing techniques. Thaw under refrigeration in a ridge pan on the bottom shelf, thaw completely under cold running water, or cook directly from frozen state. Do not allow fresh or frozen beef cuts to remain unrefrigerated unless they are to be prepared immediately.

Keep it Moving

Practice FIFO—First In, First Out—to keep product moving in the order in which it was received. Rotating fresh beef in this manner minimizes spoilage and avoids losses. Sound product procurement and rotation practices will help ensure food safety and maximize customer satisfaction.

Beef is highly perishable and simple mistakes or carelessness can impact your profitability and reputation if an incident of foodborne illness were to occur.

Storage and Handling of Fresh Beef

Proper cooler storage of fresh, non-vacuum packaged beef or vacuum packaged beef that has been opened involves three control factors: temperature, humidity and air circulation. For beef stored in vacuum packages, only temperature is critical, since humidity and air circulation will not affect the sealed packaging.

Refrigerated storage of beef is intended to prolong the life of the product for a relatively limited period of time. Storage temperatures above 40°F encourage the growth of bacteria, which can result in potential spoilage or safety problems. Fresh beef should be received at below 40°F and refrigerated immediately between 32° and 35°F. This temperature range slows bacterial growth but will not freeze the beef product, since beef freezes at about 28°F (while the freezing point of water is 32°F, beef has a lower freezing point). Storage temperatures above 40°F should be avoided since the growth of bacteria accelerates above 41°F, causing spoilage and safety concerns.

Relative humidity should range from about 85% to 90% in the cooler to minimize moisture loss and surface drying of fresh beef. Humidity is rarely too high and more often is too low. Higher humidity levels will prevent excessive drying and shrinkage, but will also encourage bacterial growth.

The rate of air circulation is determined by the conditions of the storage area. Such factors as the volume of the room, coil system, the ceiling height of the cooler, and the stacking or storing devices all affect the rate of air flow (air velocities of 0.5 to 2.5 m/sec are common). The ceiling should be high enough so that air can be circulated above the product and drop over the product. Care should be taken not to stack and crowd the product in such a way that circulation is blocked.

The initial microbial contamination can have a profound effect upon the storage life of fresh beef products. Minimizing further contamination during handling and storage is essential to maintaining optimum quality and to prolong shelf life. Maintaining a constant storage temperature between 32° and 35°F is essential to extending the shelf life.

Storage and Handling of Frozen Beef

Temperatures which result in the freezing of beef (below 28°F) are beneficial because they essentially stop the growth of all microorganisms, including those which might cause spoilage or food poisoning. However, the rate of freezing can affect the quality of beef when thawed. A rule of thumb when freezing and thawing meat is to "freeze it fast and thaw it slowly." This minimizes the formation of larger ice crystals which can break cell membranes, causing moisture loss during thawing and cooking.

The optimum temperature range for frozen beef stored in an industrial freezer is –10°F to –40°F. Since maintaining this temperature range can be costly, good management practices, such as reducing the amount of time a freezer door is left open, should be enforced.

The length of time frozen beef remains in storage can result in a gradual increase in unacceptable odors and flavors, usually caused by rancidity development and "freezer burn." Recommended freezer packaging, time and temperature guidelines should be closely followed to assure optimum beef quality. Coupled with effective procurement management, product losses due to frozen storage should be minimal.

Beef that has been improperly wrapped or partially thawed and refrozen loses surface moisture. This dehydration by sublimation (moisture evaporating from the frozen meat without thawing) can cause "freezer burn." Appearing as a discolored, dry-looking surface, freezer burn is an irreversible condition. While it doesn't make the beef unsafe to eat, it does produce a tough texture and a bland or rancid flavor in cooked beef.

There are several methods used to commercially freeze beef:

1. Still air freezing: Uses temperatures as low as –50°F without air circulation to freeze the beef and requires the longest time to complete.
2. Plate freezing: Also uses the low temperature (-50°F) of still air freezing but the plate-type freezer substitutes metal for air and shortens the freezing time because of a better coolant transferring medium.
3. Cold air blast: Utilizes low temperatures and velocities of air as high as 2,500 feet per minute, thus reducing the time required for freezing. Unless beef is well protected by appropriate packaging, the high velocity of air will also cause moisture loss during freezing, increasing the possibility of "freezer burn."
4. Liquid immersion: Freezes by immersing sealed packages in a super-cooled liquid.
5. Cryogenic freezing: Uses a liquefied gas (such as liquid nitrogen). Cryogenic freezing results in the formation of very small ice crystals, resulting in minimal damage to the tissue. Cryogenically frozen beef, when thawed, has characteristics similar to fresh beef.

Freezing fresh beef on-site should be avoided if possible. If freezing of fresh or cooked beef becomes necessary, be sure it is tightly wrapped in moisture-proof packaging, and freeze the product quickly in small batches to reduce potential moisture and flavor loss, as well as to reduce the strain on the freezer. However, proper menu or merchandising and procurement planning should minimize the need for in-house freezing of beef.

In order to preserve optimum quality, beef that is going to be frozen must be handled in the same manner used for refrigerated beef. Fresh beef frozen between 0°F and –10°F may be stored for 6 and 12 months; however, the longer the storage, the greater the loss of quality.

Rapid thawing is NOT recommended. It has the potential to do as much damage to beef as slow freezing. Rapid thawing provides a greater opportunity for the formation of new, larger ice crystals and increased microbial growth, especially when beef is thawed at a high temperature. The more desirable smaller ice crystals formed during rapid freezing may thaw too quickly and then refreeze into less desirable larger crystals, which can rupture muscle cells. This can result in increased purge during thawing, as well as greater drip loss during cooking. Slow thawing reduces the opportunity for smaller ice crystals to thaw and refreeze into larger crystals.

Unless beef products are being cooked directly from the frozen state, they should be thawed slowly with the packaging material left intact in order to minimize drip loss. Thawing methods tend to affect the amount of drip losses in direct proportion to the rate of thawing. Factors to consider when thawing frozen beef products include meat product size and the temperature used for the thawing process.

The recommended procedure is to thaw beef products at refrigerated temperatures, between 32° and 35°F. This is a slow process, so one must plan ahead. The thawing process is frequently abused, however, by thawing beef products at room temperature or in warm water. These procedures can speed up the thawing process, but they also greatly increase the rate of microbial growth and can cause excessive drip losses. In fact, thawing beef too rapidly at higher temperatures can actually undo the benefits of quick freezing.

Thawed meat products should be used promptly. In fact, cooking from the frozen or partially thawed state largely eliminates the opportunity for any appreciable microbial growth to take place.

Vacuum Packaged Beef

One of the most significant product innovations for the beef industry was the introduction of vacuum packaging systems for storage and transportation of subprimal cuts. This concept has increased the shelf life of fresh beef and has allowed the sale and movement of beef products over great distances with a minimal loss of product quality.

Keep in mind that once the vacuum bag is opened (intentionally or accidentally), the product in the bag needs to be treated as if it is a fresh, unwrapped beef product.

Most bacteria that can either cause the rapid deterioration of beef cuts or cause food safety problems require oxygen (air) to grow and reproduce. Therefore, by virtually eliminating air from beef products by placing them in an oxygen-impermeable bag, and then drawing a vacuum and sealing the bag, the growth of these bacteria is essentially stopped, and the deterioration process is slowed to a minimum.

While vacuum packaging of beef inhibits bacterial growth, it still allows the natural tenderization (or aging) process to continue as usual. The end result is an increased storage life of refrigerated beef subprimals from just a few days to perhaps several months if proper storage and handling procedures have been strictly followed by all handlers of the vacuum packaged beef.

The ultimate shelf life of vacuum packaged beef, however, can be influenced by a number of factors outside of your immediate control. Contamination of the fresh beef during harvesting, fabricating or packaging, improper transportation practices, and rough handling of boxed beef are a few conditions that can substantially decrease the storage life of the product. This makes it even more critical that the foodservice operators and retailers exercise proper handling and storage practices at all times to minimize the effects of such potential problems.

Remember that once the bag is opened, the beef must be handled as if it were fresh. Therefore, use of proper planning for food preparation is critical to avoid product loss and to optimize profitability.

Leakers

In addition to increased storage life, vacuum packaging has several advantages over other types of packaging materials. The packaging material (film) is flexible, tough, durable and, due to the composition of the film, easily sealed for oxygen resistance. Although the film is much tougher than most packaging materials, it is possible to penetrate it, thereby compromising the integrity of the bag and causing a loss of vacuum.

"Leakers," or packages that have lost their vacuum (air has entered the package), are a source of potential problems. When air enters the bag, it permits the bacteria that have been inhibited by vacuum packaging to again resume their original growth patterns, which may eventually result in spoilage of the product.

Leakers can be caused by faulty seals on packages or by the mishandling of products during shipping or other points of product transfer. In addition, vacuum packaged bone-in products have a higher percentage of leakers due to bone punctures, especially if care is not taken to properly protect the areas of bone-to-bag contact.

Foodservice operators and retailers must exercise caution in checking all incoming product for leakers. When leakers are found, the supplier should be notified, particularly if the incidence is high in a particular shipment, or if the incidence is common in all shipments from a particular supplier. Leaking packages that show no evidence of product spoilage should be used immediately, regardless of product rotation.

Purge

"Purge," "exudates" or "weep" are all terms used to identify the purplish-red fluid found in packaged beef cuts (vacuum or others). Although purge may not be directly related to product freshness nor indicate a food safety problem, the amount of purge in the package can be an indicator of past handling problems.

Excessive purge in the package can be an indication that the product may have been temperature-abused at some point. Although the temperature of the product might be in an acceptable range at the time of delivery or opening, it may have been elevated at an earlier date resulting in excessive purge. In addition, as the time following packaging increases, the amount of purge found in the bag will also increase.

Another reason for excessive purge in the case of vacuum packaged cuts is that the bag may not have had a full vacuum drawn, resulting in extra space in the bag for purge. Further, several beef subprimals (such as the knuckle/round tip, top sirloin butt, and chuck roll) tend to have more purge than other cuts, although there is no clear explanation for this occurrence.

Storing the product at the recommended refrigerated temperatures throughout the entire marketing chain and practicing product rotation will keep purge to a minimum.

Color

The color that people normally associate with fresh beef is bright cherry-red. This bright color seen in fresh beef is the result of the subprimal being exposed to air.

However, the packaging system used for vacuum packaged beef excludes air. Consequently, the color of vacuum packaged beef is not red, but rather a deep-red or purple color, which should not be confused with spoiled product. This color is the normal, natural color of the fresh beef in the absence of oxygen from air.

When a vacuum packaged beef subprimal or portioned cut is removed from its vacuum packaging and exposed to the air, it "blooms" in the presence of oxygen to a bright cherry-red color in about 15 to 30 minutes.

After a few days of being exposed to air, however, the surface of beef cuts will begin to turn brown due to a chemical reaction (oxidation) with oxygen in the air, and by initial bacterial spoilage on the surface. When cuts exposed to oxygen begin to have discoloration areas, they should be trimmed and used immediately. Under no circumstances should such cuts be frozen for later use, or mixed with fresh beef for use as ground beef.

The same color change also occurs when using fresh, bulk ground beef. When exposed to air (as seen in fresh ground beef packages in a retail meat case) the surface of the ground beef is bright cherry-red. However, when the bulk ground beef is divided into smaller portions, the color of the inside of the ground beef is a darker, purplish-red color. As with vacuum packaged beef, the color of the inside portion should brighten to a cherry-red color in 15 to 30 minutes.

Odor

Vacuum packaged beef may have a slightly undesirable odor when the bag is first opened, due to the type of bacteria that are dominant when oxygen is not present. This is a normal occurrence in vacuum packaged beef which should disappear after exposure to air for approximately 15 to 30 minutes.

Once the bag is opened, wait about 30 minutes before preparing the beef to be sure the odor disappears. If it does not, check the box code dates to determine the age of the product. The longer the beef ages in the bag, the longer it will take for the odor to dissipate. If it doesn't disappear, the flavor of the prepared product may be affected.

Also check with whoever opened the bag to determine if it was a leaker. If so, the off-odor may be caused by bacteria spoilage and may not be fit for use in food preparation.

Resources

For more information about handling & storage, please visit:

- ServSafe
  www.nraef.org/servsafe
- Safe beef handling practices and other safety information
  http://www.fsis.usda.gov/
  http://www.beefresearch.org/
- National Grocers Association safety information
  http://www.nationalgrocers.org/industry-issues/food-safety
- Beef Industry Food Safety Council
  http://www.bifsco.org/

BEEF U

a guide for professionals

Beef Cookery

Contents:

BEEF®

Funded by the Beef Checkoff.

The satisfaction of our beef cravings ultimately depends on how beef is cooked — it's that important. A USDA Prime grade steak can be rendered inedible by improper cooking while a lower-grade cut can be greatly improved with proper cooking techniques.

The Science of Beef

Outside of water, beef is mainly protein. From the Greek word proteios (primary), protein is essential to all living cells. When proteins are ingested, our digestive enzymes break them down into amino acids that are easily absorbed into our bloodstream.

The three general classifications of meat proteins are:

1. Myofibrillar Proteins: include actin and myosin, the most abundant muscle proteins that are important for muscle fiber structure and the relaxing and contracting of muscle.
2. Stromal Proteins: also called connective tissues, these appear in muscle as collagen, elastin and in much smaller amounts, reticulin.
    a. Collagen: white, thin and transparent, yet tough; has a major impact on muscle tenderness after cooking as it does not break down easily. Collagen needs moist heat cooking methods to convert it to tender gelatin or should be removed if using dry heat cooking methods.
    b. Elastin: referred to as "yellow" connective tissue, it cannot be broken down with any amount of heat and should be removed prior to cooking.
3. Sarcoplasmic Proteins: also known as water soluble proteins, these include hemoglobin and myoglobin, which contains pigments that give beef its red color; include a wide variety of enzymes that contribute to the aging process.

How Proteins Cook

There are concurrent toughening and tenderizing changes that take place when beef is cooked. The extent of each (at any given point during the cooking process) depends on the cooking time, temperature, cooking environment and composition of the muscle.. The solubilization process of other proteins (collagen) has a tenderizing effect because they turn into gelatin when heated in a moist environment. Fat also improves tenderness due to its lubricating effect when it melts during cooking.

Brown = Flavor: The Maillard Reaction

A common beef cooking technique that should never be skipped is browning. Why? Because browning creates beef flavors that can only be produced through dry heat – unique flavors and aromas that are not intrinsic to the beef itself. During browning, temperatures of 350°F or higher on the surface of the beef cause proteins (amino acids) and carbohydrates (sugars) to caramelize into intense flavors and aromas. This browning process is called the Maillard Reaction, named after the French scientist who discovered it. Everything from baked goods to coffee beans to beef benefit from this complex reaction of sugars and amino acids caused by higher heat. The Maillard Reaction is the reason why a beef stew has a richer flavor when the beef, vegetables and flour are browned before adding the liquid.

Beef Cooking Methods

Beef develops its desirable flavor and aroma during cooking. True meaty, umami flavor begins with the application of heat as it transforms proteins, carbohydrates and fats into their smaller, more flavorful components of amino acids, sugars and fatty acids.

All beef cooking methods fall into two main categories: Dry Heat Methods and Moist Heat Methods. For tender beef cuts use Dry Heat Methods and for less tender cuts use Moist Heat Methods. Tender cuts come primarily from the middle of the animal – the rib and loin – because they are support muscles that receive less exercise and contain less connective tissue. Less tender cuts come primarily from the front and hind sections of the animal – the chuck and round – because these are heavily exercised muscles that develop more connective tissue. While beef cooked in liquid develops a different flavor than beef that is roasted or broiled, heat in general produces the same effect on beef proteins.

As heat denatures myofibrillar proteins, they gradually shorten or toughen and release liquid as connective tissues solubilize and begin to break down. The key internal temperature at which these changes begin to take place is 149°F. When beef with low amounts of connective tissue, such as loin and rib cuts, are cooked beyond this temperature, the additional heat continues to toughen them. So fast cooking at higher temperatures is preferred (dry heat). Beef with higher levels of connective tissue, such as some chuck and round cuts, need longer, slower cooking (moist heat) to allow time for the connective tissue to convert to gelatin and become tender.

The sarcoplasmic proteins—hemoglobin and myoglobin—are also denatured during cooking. The color change in these pigments is the primary indicator for degrees of doneness in beef. As the temperature of the beef increases, the muscle becomes progressively opaque, changing from red to pink to brown. The color of beef juices also changes from pink to pale amber.

Dry Heat Cooking Methods:

- Broiling
- Grilling
- Oven Roasting
- Skillet Cooking/Sautéing/Stir-Frying

Characterized by quick cooking at higher temperatures, dry heat methods use uncovered
pans, direct heat and no additional liquid. Browning via the Maillard Reaction is a key flavor factor. Best used with tender cuts, dry heat methods minimize the toughening effect of heat on muscle fibers.

Broiling & Grilling: Cooking time is critical in broiling and grilling since thinner cuts such as steaks, kabobs and burgers are cooked at higher temperatures and can easily overcook.

Oven Roasting: This cooking method takes place in an open pan in the oven without liquid. Lower oven temperatures result in less moisture loss, producing higher yields.

Some very tender cuts with less connective tissue can be roasted at higher temperatures with juicy, flavorful results: like tenderloin, rib and ribeye.

> **Stand Time**: Since the internal temperature of a roast continues to rise after cooking, it's best to remove the roast from the oven when the thermometer registers 5°F to 10°F below the desired doneness. Roasting illustrates how the protein denaturing process can sometimes be reversed. If a roast is immediately carved after removing from the oven a substantial amount of juice is squeezed out and lost. But when the roast is allowed to stand for 15 to 20 minutes, the proteins are able to reabsorb some of the moisture that was released during heating, producing a firmer, juicier, easier to carve roast.

Sautéing/Stir-Frying: A variation of sautéing, stir-frying cooks thin, uniform beef pieces quickly in a small amount of fat in an open skillet or wok. For best results, use tender beef cuts, though some less tender cuts, such as flank, can be stir-fried when cut into thin strips. The classic Chinese technique called "velveting" enhances the texture of stir-fried beef strips with the aid of a cornstarch marinade. The cornstarch binds the flavors to the beef by sealing in juices and protects the beef during cooking.

Moist Heat Cooking Methods:

- Braising/Pot Roasting
- Cooking in Liquid/Stewing/Poaching

A slow, gentle process, moist heat methods take place over low heat in a tightly covered pan to which liquid has been added. The beef is typically browned before adding the liquid to add color and flavor. Best used with less tender cuts, moist heat methods solubilize collagen and develop natural beef flavors. Steam, which is produced from the liquid and retained by a tight-fitting cover, converts tough collagen into tender gelatin.

During long, slow cooking in moist heat, beef flavor components leach into the cooking liquid creating delicately flavored meat. The lack of strong browned beef aromas also reduces flavor intensity. So ingredients such as broth and wine are often used in place of water to produce a flavorful, aromatic sauce or gravy. The difference between cooking in liquid/stewing and braising/pot roasting is in the amount of liquid. Cooking in liquid/stewing uses more liquid, usually enough to cover the beef.

Matching Beef Cuts to Cooking Method

Use the chart below to help understand the recommended preparation method for a particular beef cut.

Matching Cooking Methods to Beef Cuts Ensures Success	Pan-Broil Pan-Fry	Stir Fry	Grill	Broil	Roast	Braise	Stew
CHUCK							
Beef Country-Style Ribs						■	
7-Bone Chuck Steak			*	*		■	■
Chuck Tender Steak						■	■
Arm Chuck Steak						■	■
Chuck Eye Steak, Boneless	■		■	■		■	■
Flat Iron Steak	■	■	■	■			
Shoulder Steak	■		■	■		■	■
Ranch Steak	■	■	■	■			
Petite Tender Medallions	■						
Short Ribs, Boneless						■	■
Arm Chuck Roast						■	■
Top Blade Roast						■	■
Petite Tender Roast		■	■	■	■		
Denver Steak	■	■		■			
RIB							
Ribeye Steak	■	■	■	■			
Ribeye Roast			■		■		
LOIN							
Porterhouse Steak /T-Bone Steak	■		■	■			
Strip Steak	■	■	■	■			
Tenderloin Steak	■	■	■	■			
Tenderloin Roast			■		■		
SIRLOIN							
Tri-Tip Steak	■	■	■	■			
Top Sirloin Steak, Boneless	■	■	■	■			
Tri-Tip Roast			■		■		

**Requires marinating for tenderization*

Matching Cooking Methods to Beef Cuts Ensures Success	Pan-Broil Pan-Fry	Stir Fry	Grill	Broil	Roast	Braise	Stew
ROUND							
Top Round Steak	*	■	*	*			
Western Steak	*		*	*			
Eye of Round Steak	*	■	*			■	
Sirloin Tip Steak	■	■					
Sirloin Tip Center Steak	■	■	■	■			
Sirloin Tip Side Steak	*	■	*	*			
Eye of Round Roast, Bottom Round Roast, Bottom Round Rump Roast					■	■	
Top Round Roast					■		
Sirloin Tip Roast					■		
SHANK & BRISKET							
Brisket, fresh or corned						■	■
Shank Cross Cut						■	■
PLATE & FLANK							
Skirt Steak	*	■	*	*		■	
Flank Steak		■	*	*		■	
OTHER CUTS							
Ground Beef	■		■	■	■		
Cubed Steak	■					■	
Stew Meat							■
Kabobs			■	■			

**Requires marinating for tenderization*

Degree of Doneness

Perfectly cooked, flavorful beef achieves a balance between the minimum amount of cooking needed for maximum palatability and food safety. Meat thermometers and the visual appearance of the beef aid in determining degrees of doneness.

Steaks, Roasts and Other Whole Muscle Cuts
- 145°F medium rare
- 160°F medium
- 170°F well done

Ground Beef
- 160°F medium
- 170°F well done

Braised or Stewed Beef
- Always well done, fork tender

Processing and foodservice industries follow the Food and Drug Administration's (FDA) Model Food Code, which outlines in detail how long beef can be held at certain interim cooking temperatures. For more information on the FDA Model Food Code, go to www.cfsan.fda.gov/~dms/foodcode.html.

Resources
For more information on beef cookery, please visit:

- Consumer Resources on Cooking with Beef:
  www.BeefItsWhatsForDinner.com http://BeefRetail.org/Education.aspx

- Beef Recipes
  www.BeefRetail.org/ImagesRecipes.aspx
  www.BeefFoodservice.com/RecipeSearch.aspx

- Beef Culinary Innovation Center
  www.CulinaryInnovationCenter.com/

BEEF U

a guide for professionals

Beef Flavor Fundamentals

Contents:

BEEF®

Funded by the Beef Checkoff.

Flavor Fundamentals: A Brief Overview

Most of us use the terms taste and flavor interchangeably, but they're actually different. Taste refers to the five basic receptors: sweet, salty, sour, bitter and umami (the one we didn't learn about in school). Flavor is a combination of taste plus the other sensations that influence our perception of food, such as aroma, texture, juiciness, mouthfeel and color.

The Five Taste Receptors

Receptors on our tongues and in our mouths send signals to our brains when we experience certain tastes. Salt and sour receptors are well understood while bitter and sweet receptors appear to be more complex.

Umami [oo-MOM-ee], known as the fifth taste, was discovered in the early 1900's by a Japanese scientist, Dr. Kikunae Ikeda, at Tokyo's Imperial University. He undertook research to ascertain the true nature of the "deliciousness" of konbu, or kelp, an indispensable part of Japanese cuisine. He succeeded when he extracted glutamate from the konbu, discovering that it was the main active ingredient and the key to its delicious taste. He coined the term "umami", derived from the Japanese word for delicious, umai. Nearly 100 years later, in 1997, taste researchers Stephen D. Roper and Nirupa Chaudhari of the University of Miami Medical School clearly identified taste buds on the tongue, and have since cloned receptors, that respond to umami.

Umami is described as meaty and savory or delicious. It is the taste of glutamates – the salts of an amino acid – and other small molecules called nucleotides, and is a bona fide fifth taste. The ability to detect these five tastes has been key to our survival throughout the ages, directing us toward vital foods and away from potential poisons. Sweet means energy-giving carbohydrates. Salt indicated essential minerals for life-sustaining cell functions and wound healing. Sour says "proceed with caution," since many foods sour as they deteriorate. Umami signifies life-giving protein. And bitter warns "spit it out, don't touch it" because many natural toxins taste bitter.

The Amazing Umami Effect

The small protein compounds that trigger our umami receptors come from many sources. Meaty, savory umami flavors instantly bring to mind a great steak, but fruits and vegetables also contain these same proteins. Tomatoes, mushrooms, aged cheeses, green tea and seaweed all stimulate our umami receptors.

Part of umami's great flavor power comes from synergism, or the fact that the whole is greater than the sum of its parts. When individual umami compounds are combined, they have a magnifying effect on each other. This explains the delicious pairings of mushrooms and steaks, and red wine or tomato sauces with beef.

A 50-50 mixture of two umami compounds can produce eight times as much flavor as either one of the compounds alone.

In addition, ripening, aging and fermenting foods can dramatically increase their umami flavor compounds. That's why a truly ripe tomato, aged Parmigiana-Reggiano and

fermented foods, such as red wine and soy sauce, possess enticing complex flavors – and also pair well with beef dishes.

Three Natural Sources of Umami

The umami taste is produced by naturally occurring compounds – the amino acid glutamic acid, salts of glutamic acid (glutamates) and nucleotides. It's no surprise that beef contains all three of these compounds.

Natural Sources of Glutamic Acid and/or Glutamates (listed from highest to lowest content):

- Kelp
- Cheeses
- Green tea
- Seaweed
- Sardines
- Fresh tomato juice
- Peas
- Corn
- Mushrooms
- Tomatoes
- Oysters
- Potatoes
- Chinese cabbage
- Duck
- Soybeans
- Chicken
- Spinach
- Mackerel
- Carrots
- Beef
- Beets
- Milk

Natural Sources of 5'-gunylate (a nucleotide – small part protein compound; listed from highest to lowest content):

- Dried mushrooms
- Mushrooms
- Beef
- Chicken

Natural Sources of 5'-inosinate (a nucleotide – small part protein compound; listed from highest to lowest content):

- Bonito
- Mackerel
- Sardines
- Cod
- Tuna
- Beef
- Prawns
- Chicken

Beef Flavor

It's no accident that beef is often paired with certain ingredients in both recipes and menu items. And as we've now learned, when two or more umami compounds meet, it's love at first bite – an explosion of savory, meaty, delicious flavors!

Top Flavors to Pair with Beef

- Aged Cheeses*
- Bacon*
- Barbecue Sauce*
- Bell Peppers
- Garlic
- Mushrooms*
- Mustard
- Onions
- Peppercorns
- Red Wine*
- Sour Cream*
- Soy Sauce*
- Thyme
- Tomatoes*
- Worcestershire Sauce*

(*indicates umami-rich ingredients)

Classic Beef Combinations

Why does the thought of Beef Bourguignonne perk up our appetites while Sweet and Sour Beef has us wrinkling our noses? Because the flavors in classic beef dishes exist for a reason – they harmonize deliciously! Use classic beef dishes as a flavor road map, navigating you towards ideal ingredients as you develop your own beef products, recipes and menu items.

Fat and Flavor

We have a love-hate relationship with it. We crave its flavor yet are told to keep our intake to a minimum. This dichotomy was illustrated in a Beef Checkoff-funded study conducted on behalf of the Cattlemen's Beef Board by the University of Nebraska. The study revealed that more than 70% of consumers visually preferred low marbled steaks. However, high marbled steaks were rated more juicy, flavorful and acceptable by a taste panel than low marbled ones.

Clearly the flavor and juiciness fat imparts is one of the major reasons why we enjoy – and crave – beef. There are three types of fat in meat:

1. Subcutaneous or external fat that covers the outside of a carcass
2. Seam or intermuscular fat that runs between muscles
3. Marbling or intramuscular fat that is found within muscles

Marbling, or the visible flecks of fat within muscles, is directly related to the palatability or flavor and juiciness of cooked beef. There are ten degrees of marbling USDA graders use for evaluation, from Very Abundant to Practically Devoid.

Marbling affects flavor in two ways:

1. Fatty acids (the building blocks of fat) experience chemical changes during cooking and produce potent flavor compounds.
2. Fat acts as a storehouse for aromatic compounds that are released during cooking. Many beef flavor components are found in these aromatic compounds.

Adding Flavor... Marinades, Rubs, Pastes, Cures, Brines

Marinating

Commonly used with thin beef cuts, such as steaks, a marinade is a seasoned liquid that adds flavor and in some cases increases tenderness. Successful marinating matches the marinade type and marinating time to the beef cut.

Tender beef cuts are marinated only to add flavor and therefore need short marinate times – 15 minutes to 2 hours. Less acidic marinade ingredients are used since their tenderizing effects are not required. A highly acidic marinade can actually toughen meat fibers similar to overcooking.

Less tender beef cuts, such as several from the chuck, round, flank and skirt benefit from a marinade with tenderizing ingredients (food acids or enzymes) and a longer marinating time of 6 to 24 hours.

- Acidic marinade ingredients include citrus juices, vinegar, vinaigrettes, salsa, yogurt and wine.
- Fresh ginger, pineapple, papaya, kiwi and figs contain natural tenderizing enzymes.
- Tenderizing marinades penetrate about 1/4 inch into the surface of the beef.
- Beef marinated for longer than 24 hours may develop a mushy texture.
- Use a nonreactive glass or stainless steel container for marinating.
- Always marinate in the cooler, never at room temperature.
- Turn steaks or stir beef strips occasionally to allow even exposure to the marinade.
- Never save and reuse a marinade.
- Reserve some marinade before adding it to raw beef and use as a baste or sauce.
- Bring marinade that has been in contact with raw beef to a full rolling boil and boil for at least 1 minute before using as a sauce.

Rubs/Pastes

Unlike marinades, rubs are dry or paste-type seasoning mixtures used for flavoring. Usually applied to the surfaces of roasts, steaks and ground beef patties just prior to cooking, they often form a delicious crust during cooking.

- Dry rubs consist of herbs, spices and other seasonings that are pressed onto the beef's surface.
- Paste-type rubs are spread over the beef and use small amounts of wet ingredients, such as oil, crushed garlic, mustard, soy sauce and Worcestershire sauce, to bind the dry seasonings.

Cures/Brines

Curing and brining methods rely on salt mixtures/solutions. For dry cures, salt and sodium nitrate are applied directly to the beef's surface. Beef is also cured by immersing it in pickling or brining solutions that may or may not contain nitrates.

Originally developed as a form of meat preservation, today these methods are mainly used to produce distinctive flavors, such as in corned beef and pastrami.

Beef Flavor Questions and Answers

What is Warmed Over Flavor (WOF)?
Warmed Over Flavor consists of flavor and aroma defects that occur in reheated meat products. This condition is caused primarily by oxidation of some of the components of beef. Right after cooking, the conditions are perfect for the oxidation process to begin. That is why it is best to eat beef right after cooking. While the reheating process accelerates the oxidation process, WOF can be present before reheating.

What factors worsen WOF?
Cooking to a high degree of doneness (dry cookery), improper storage, microbial contamination and exposure of cooked meat to oxygen or light.

If I know I will have leftover beef, how can I minimize WOF?

- If possible, avoid using iron or aluminum cooking utensils. Certain metals accelerate the oxidation process.
- Select recipes that use ingredients with antioxidant properties (i.e., unroasted bell peppers, onions, unpeeled potatoes).
- Tightly wrap leftovers with oxygen impermeable plastic material and eliminate all air pockets.
- If an over sauce was used as part of the recipe, apply the over sauce to the entire surface of the cooked meat and wrap tightly.
- Pack and store leftovers promptly and at proper refrigerated temperatures.

Why do some fully cooked beef products I purchase not have WOF?
These products may include antioxidants and are vacuum packaged before cooking. The absence of oxygen during cooking prevents the development of WOF. Moist cooking at home also helps minimize WOF because there is no air or available oxygen in steam. This is why WOF is not commonly found in stews, soups and some pot roasts.

What causes liver flavor in beef?
Liver flavor in beef is a complex phenomenon without a clear cause. Several factors have been associated with it but additional research is needed to accurately pinpoint its cause. In general, those who detect it, do not like it. Based on current knowledge the following are some practical approaches for minimizing this condition:

- Execute proper bleeding during processing. The hemoglobin in red blood cells contains iron, which has liver flavor characteristics.
- Avoid extended aging. Fat oxidizes during aging (even wet aging) and the products of oxidation appear to accentuate the liver flavor.
- Use recipes that include the use of herbs and spices (masking effect).
- If possible, avoid cooking to a high degree of doneness.
- Some muscles that are naturally high in iron due to their high myoglobin content are more susceptible to liver flavor (i.e., beef top blade, beef round tip bottom).

Where does metallic mouthfeel in beef come from?
Metallic mouthfeel is attributed to high myoglobin and hemoglobin contents since these proteins release iron during cooking. Increased hemoglobin may also be caused by improper blood removal during processing. This off flavor may be reduced by cooking beef to a lower degree of doneness.

Why does beef occasionally taste soapy?
Commercial beef marinades may contain phosphates to help the muscle retain the marinade. Too much added phosphate can cause a soapy taste and rubbery texture. Sometimes dark cutters can also produce a soapy taste.

Top Factors Influencing Beef Flavor

- Marbling
- Quality Grade
- Cooking Method
- Degree of Doneness
- Postmortem Aging
- Marinating
- Freezing/Thawing
- Added Flavors
- Beef Production (feeding practices)

Top Factors Affecting Beef Tenderness

- Animal Maturity
- Postmortem Aging
- Muscle Type
- Marbling
- Marinating
- Mechanical Tenderization
- Proper Cooking Methods
- Degree of Doneness
- Proper Carving Technique

Resources

For more information on beef flavor fundamentals, please visit:

- Confident Cooking with Beef: http://www.epaperflip.com/aglaia/viewer.aspx?docid=a3a6b561fc3043ba8a0db27ef94bf8f5
- Lean Beef Flavor Boosters: http://www.epaperflip.com/aglaia/viewer.aspx?docid=034a3b45b9324176b7121709dadc4d4f
- Beef Recipes: BeefRetail.org/ImagesRecipes.aspx; Beeffoodservice.com/recipesearch.aspx
- Beef Culinary Innovation Center: www.CulinaryInnovationCenter.com/
- Beef Tenderness Study: http://viewer.epaperflip.com/Viewer.aspx?docid=ab05f9a3-972d-406b-92ff-a05c009d2e73
- Product Enhancement Research: http://www.BeefResearch.org/executivesummaries.aspx

BEEF U

a guide for professionals

Product Information: General

Contents:

BEEF®

Funded by the Beef Checkoff.

Processing and Selecting Beef

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 1,300 pounds (average carcass weight is 825 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 to 48 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 refers to 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.

Beef Inspection

Meat production is the most highly regulated segment of the food industry. All meat sold must, by law, be inspected for wholesomeness. While the USDA's Food Safety and Inspection Service develops rules and regulations for the production of safe foods, the

beef industry also takes responsibility for producing the safest product possible. Food safety begins with the cattleman, includes the processor, wholesaler and retailer and ends with the consumer.

Beef Grading

Unlike mandatory inspection, beef quality and yield grading is voluntary and paid for by meat packers and, ultimately, consumers. Grading sets standards of quality (marbling sounds better than quality all beef is good quality)and yield used in the buying and selling of beef.

The meat grading program is administered by the USDA. Quality grades indicate palatability — tenderness, juiciness and flavor of the cooked beef. Yield grades are used at the wholesale level to indicate which carcasses will provide the most tender and marbled beef. Both quality and yield grades are determined by measuring and assessing carcass characteristics.

There are eight USDA quality grades — Prime, Choice, Select, Standard, Commercial, Utility, Cutter and Canner. Muscle firmness, color and texture, maturity and marbling are the factors that determine quality grades. A high amount of marbling is desirable. Generally, only three grades are identified and sold at retail: Prime, Choice and Select.

1. **Prime** has the most marbling. It usually is sold to restaurants, although some specialty meat markets and supermarkets may carry it.
2. **Choice** cuts tend to have a little less marbling than Prime. Choice is the most widely available grade in the market.
3. **Select** has the least amount of marbling, making it leaner but often less juicy and flavorful than the other two grades.

There are five maturity groups — "A" through "E" with "A" indicating carcasses from the youngest animals. Maturity is one of the most important quality factors since meat from older animals is typically less tender. Mature cattle carcasses (about 42 months or older) are typically not graded. Maturity is determined by examining the bone ossification.

There are five yield grades — 1 through 5. The factors used to determine yield grades of carcasses are amount of external fat, carcass weight and ribeye size. The lower the grade number the higher the yield of boneless, closely trimmed retail cuts, which is known as cutability.

Beef Certification

The USDA and Agricultural Marketing Service (AMS) currently manage the certification of many different process-verified programs. While most of the programs are based on carcass specifications related to improve eating quality, some programs include specific breed types. For example, the USDA and AMS oversee several different Angus programs.

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 whole, are then usually reduced to subprimals. Subprimals can be cooked or used to produce further-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 into steaks or roasts. The Strip Steak is an example of a subprimal cut often purchased in this manner.

Fabricating Oven-Ready and Portion-Control Cuts

Although some 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

- 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 operators. In addition, while these cuts have a significant impact year-round, 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.

Several of these cuts, such as the Flat Iron Steak, have grown in popularity and are now being manufactured throughout the U.S. and sold through retail and foodservice outlets. Several of these cuts have grown in popularity such as the Petite Tender, Ranch Steak, Flat Iron Steak, and are now being manufactured throughout the United States and sold through retail and foodservice outlets. Sales data has shown us that Flat Iron, Petite Tender and Ranch Steak in particular have been quite successful at retailers, with nearly 16 million pounds sold in 9,900 retail locations in 2010, according to FreshLook Marketing.

There have been three phases of the value-added cut product roll-out:

1. **Phase One** - Started in 2002 with the roll out of cuts from the shoulder clod, including the Flat Iron steak, which started to receive mainstream industry appeal in 2008.
2. **Phase Two** – Late 2008, on the heels of the success of the Flat Iron Steak, Chuck Roll cuts were rolled out to retail and foodservice for testing and validation.
3. **Phase Three** – Five new cuts from the round were unveiled to industry partners such as processors, suppliers, retailers and foodservice operators at the Innovative Beef Symposium in late August 2010.

Beef Packaging

The cutting and packaging of beef at retail has undergone many changes, from whole carcasses fabricated in retail backrooms to case-ready beef. Case-ready beef involves the packaging of specific beef cuts at a central location so they are ready for sale at the retail level.

Various systems of commercial case-ready packaging are available, including high and low oxygen systems. With regard to beef storage and handling, there are advantages to case-ready beef. Due to a centralized fabrication system and leak proof packaging, product safety is enhanced. Profitability is increased through reduced shrinkage, inventory costs and discounting. And there is a perceived added value by the consumer with improved visual appeal, a consistent supply of special cuts and fewer out-of-stock products.

Ordering Beef

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 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.

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", which depicts each IMPS item with a color photograph and a written description. The information is also available online at www.MeatBuyersGuide.com

The Meat Buyer's Guide contains product descriptions for more than just beef items, and can be extremely useful for all meat purchasing decisions. The Meat Buyer's Guide 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	

In the Meat Buyer's Guide, portion-cut items reflect the subprimal from which they are cut, and simply have a "1" placed in from 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 buyer can communicate directly (over the phone, by Internet, or in person) to the supplier and describe 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."

Pricing Decisions

Many 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 Meat Buyer's Guide and compare the specifications on the product. Just looking at the photographs tells you they are considerably different.

By reading the product description, you see that the #189 Beef Loin, Tenderloin, Full has a fat specification of ¾" at one end tapering to meet the lean. However, the #190A Beef Loin, Tenderloin, Full, Side Muscle Off, Skinned is completely 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.

Resources

For more general information on beef, please visit:

- **BeefRetail.org**
- **BeefFoodservice.com**
- **Beef cut finder**
  http://www.BeefRetail.org/ImagesRecipes.aspx
  http://www.beeffoodservice.com/cutsearch.aspx
- **Recipes and images**
  http://www.BeefRetail.org/ImagesRecipes.aspx
  www.BeefItsWhatsForDinner.com/Recipes.aspx
  http://www.BeefFoodservice.com/recipesearch.aspx
- **Beef cut charts**
  http://beefretail.org/beefcutcharts.aspx
- **Beef Culinary Innovation Center**
  http://www.culinaryinnovationcenter.com/
- **Beef Product & Market Research**
  www.BeefResearch.org
- **NAMP Meat Buyer's Guide**
  www.MeatBuyersGuide.com
- **Beef Innovations Group – New Cuts**
  http://www.beefinnovationsgroup.com/newcutstechnical.aspx
  http://www.beefinnovationsgroup.com/cutsanimationandresources.aspx

Product Information: Steaks

BEEF U
a guide for professionals

Contents:

BEEF
Funded by
the Beef Checkoff.

General Steak Info

Beef steak is an American favorite. The reason why is simple: steak tastes great and delivers the ultimate dining enjoyment experience for consumers. It's versatile, convenient and uniquely customizable, and with the newly expanded steak category, there's a steak to fit any menu. Steak is bold, assertive and stands out from the crowd, providing a feeling of satisfaction that is unequalled.

Steakhouse Favorites

- Tenderloin Steak
- Tenderloin Filet
- Strip Steak
- Top Sirloin Steak
- Porterhouse Steak
- T-Bone Steak
- Ribeye Steak, Boneless
- Ribeye Steak, Bone In

Rising Star Steaks – Shoulder Clod

- Flat Iron Steak
- Petite Tender Medallions
- Ranch Steak
- Ribeye Cap Steak
- Hanger Steak

Rising Star Steaks – Chuck Roll

- Chuck Eye Steak
- Denver Steak

Value Steaks

- Chuck Eye Steak
- Top Sirloin Steak
- Top Sirloin Steak, Boneless, Center Cut
- Top Sirloin Steak, Boneless
- Tri Tip Steak and Roast
- Sirloin Tip Steak
- Sirloin Tip Center Steak
- Top Round Steak
- Bottom Round Steak
- Flank Steak
- Skirt Steak

Tenderness Ranking

The most tender beef steaks, in order from most tender, are:

- Tenderloin Steak
- Flat Iron Steak
- Ribeye Cap Steak
- Petite Tender (Roast or Medallions)
- Strip Steak
- T-Bone Steak/Porterhouse Steak

- Ribeye Steak
- Ranch Steak
- Flank Steak
- Sirloin Tip Steak
- Sirloin Steak
- Top Round Steak
- Top Sirloin Steak

Nutrition Lean List
The leanest beef steaks, in order from most lean, are:

- Cubed Steak
- Round Steak
- Top Sirloin Steak
- Cubes
- Round Steak
- Ranch Steak

Preparing Steakhouse Steaks

Pat raw steaks dry to promote browning, then season steaks with a rub or marinade. Cook over medium heat and adjust cooking time to thickness of the steak. Use tongs to turn. Turn once for steaks ½ inch thick; turn occasionally for larger steaks. Insert a thermometer to determine if the steak is done. Cook to medium rare (145°F) to medium (160°F). After cooking, let steaks stand 3 minutes before serving.

Individual Cut Information

Chuck
1114D, PSO1 Beef Shoulder, Top Blade Steak (Flat Iron Steak)
114D, PSO1 Beef Chuck, Shoulder (Clod), Top Blade (Flat Iron Steak, London Broil-style)

- A new favorite
- The second-most-tender beef muscle
- Thickness varies naturally; available in 6-to-14-ounce portion sizes for a variety of uses (individual steaks average about 7 oz.)
- Can be ordered by weight only
- Grill and feature just as you would a strip or ribeye steak
- 114D PSO1 resembles a flank steak in shape; grill and slice thin for fajitas, sandwiches and salads
- Slice into strips for stir-fries, skewers and pastas, or cut into cubes for kabobs
- Suitable for any foodservice operation for casual to white tablecloth

1114E Beef Shoulder, Arm Steak (Ranch Steak)

- Affordable new steak cut
- Similar in flavor and texture to top sirloin; shaped like a NY strip
- Ideal as a breakfast or lunch steak in sandwiches and salads, or on a dinner combo plate
- Slice into strips for stir-fries, skewers and pastas
- Ideal for kabobs; marinate for added flavor

- Use as you would a boneless, skinless chicken breast: whole or sliced

114F PSO1 Beef Chuck, Shoulder Tender (IM) (Petite Tender)
1114F Beef Shoulder Tender, Portioned (Petite Tender Medallions)

- Newly discovered tender cut
- 2 of these muscles per animal, so it's available in limited quantities
- The whole muscle is similar in shape and size to pork tenderloin, ranging from 8 to 12 ounces
- Use whole and menu as a steak similar to Hanging Tender Steak
- Foodservice operators should carve tableside

1116D Beef Chuck, Chuck Eye Roll Steak, Boneless (Chuck Eye Steak)

- The extension of the ribeye muscle, sometimes called "mock ribeye"

Rib
1103 Beef Rib, Rib Steak, Bone In (Rib Steak)
1103B Beef Rib, Rib Steak, Bone In, Frenched (Bone-in Ribeye Steak, Cowboy Steak)

- Prepared from any bone-in rib subprimal
- Bone-in = dramatic presentation plus an extra flavor boost
- Rib steaks are sometimes "Frenched" with all fat and lean trimmed from the bone end to expose 1 to 3 inches of bone

1112, 1112A&B Beef Rib, Ribeye Roll Steak, Boneless (Delmonico Steak, Ribeye Steak)
1112C Beef Rib, Ribeye (Ribeye Steak)
112D PSO1, 1112D Beef Rib, Ribeye Cap

- A steakhouse classic
- Small end is a term used to describe steaks cut from the loin end; large end is reference to steaks cut from the chuck end and have more muscles
- The Ribeye Cap is a tender cut and lends to a variety of menu applications

Short Loin
1173 Beef Loin, Porterhouse Steak (Porterhouse Steak)

- Cut from the sirloin (large) end of the short loin
- T-shaped bone
- Contains both the strip and the tenderloin
- Tenderloin muscle must be at least 1¼ inches when measured across center; larger than a golf ball
- Perfect sweetheart steak for Valentine's Day; foodservice operators should carve tableside

1174 Beef Loin, T-Bone Steak (T-Bone Steak)

- Cut from the center of the short loin
- T-shaped bone
- Contains the strip and (smaller) tenderloin
- Tenderloin muscle must be at least ½ inch when measured across center, but smaller than a golf ball

1179, 1179A Beef Loin, Strip Loin Steak, Bone In (Strip Steak, Shell Steak)

- Cut from the rib (small) end of the short loin
- Bone-In means more plate coverage plus extra flavor boost
- Contains same vertical bone as the Porterhouse and T-Bone, but no backbone and no tenderloin muscle

1180, 1180A Beef Loin, Strip Loin Steak, Boneless (Kansas City Steak, New York Strip Steak, Top Loin (Strip) Steak, Ambassador Steak, Boneless Club)

- Excellent for flavorful, dry-heat cooking methods such as smoking or grilling with aromatic woods and roasting
- Versatility makes it excellent for seasonings, sauces and accompaniments
- Can be cut in half for petite steaks

1189 Beef Loin, Tenderloin Steak (Filet Mignon, Tenderloin Steak)

- Advantages of portion cuts; uniform, consistent product, cost control, safe and efficient storage
- Beef Tenderloin menus well in several portion sizes, offering patrons a variety of size and price options
- It's suitable for a wide range of traditional as well as unique menu applications
- Chateaubriand—a recipe for a thick-cut tenderloin steak large enough for 2 people—was created during Napoleon's time for the French author and statesman Francois Chateaubriand
- O. Henry first used the term Filet Mignon in his 1906 book, The Four Million; the literal meaning is small (mignon) boneless meat (filet)

1140 Hanging Tender Steak (Hanger Steak, Onglet Steak)

- Only one per carcass, so limited supplies available
- Portion of the diaphragm muscle attached to the back section of the last rib
- Soft, grainy textured, elliptical-shaped muscle approximately 7 inches long
- Found between the 12th and 13th ribs of the carcass close to the backbone
- One of its most popular uses is being menued as the Bistro Steak
- Can be ordered by weight only

<u>Sirloin</u>

1184, 1184A&B Beef Loin, Top Sirloin Butt Steak, Boneless (Beef Top Butt Steak, Beef Top Sirloin Steak)

1184F Beef Loin, Top Sirloin Butt Steak, Center-Cut, Boneless, Seamed (Beef Top Butt Steak, Beef Top Sirloin Steak)

1184D Beef Loin, Top Sirloin Cap Steak, Boneless (Beef Sirloin Steak, Culotte Steak)

- Moderately priced
- Leaner dining option
- All boneless
- Center-cut sirloin steaks (1184B) have only one muscle

- Made into specified portion size or thickness by slicing pieces at a right angle to the grain (muscle fibers)
- Portion cuts offer consistent product with uniform appearance and cost control
- Provides plenty of creative options for expanding menus because one cut can be used for multiple menu items—steaks, cubes, strips, kabobs or in salads, soups and sandwiches
- Wide range of portion sizes satisfies varying patron tastes and price points
- Culotte Steak (1184D) is a boneless, flavorful steak consisting of the bicep femoris muscle in the sirloin

1185D&C Beef Loin, Bottom Sirloin Butt, Tri-Tip Steak, Defatted (Tri-Tip Steak)

- A west coast favorite
- Versatility at a moderate price
- Named for its triangular shape; comes from the bottom sirloin
- Tender cut, does not require marinating for tenderization

<u>Round</u>

1167E Beef Round, Knuckle (Tip) Center Steak (Sirloin Tip Steak, Sirloin Steak)
1167, 1167A&D Beef Round, Knuckle (Tip) Steak (Sirloin Tip Steak, Sirloin Steak)

- Value steaks
- Lean
- Benefit from tenderizing marinade
- Premium of the three is the center steak

1169 Beef Round, Top (Inside) Round Steak (Beef Top Round Steak, London Broil)

- Less expensive beef cut
- Good profit opportunities
- Not recommended for moist heat cookery
- The versatile top round is perfect for both classic favorites and flavorful ethnic preparations
- Its great value is enhanced with marinades, sauces, accompaniments and side dishes
- Its strong nutrition profile makes this cut ideal for lighter menus

1170A Beef Round, Beef Bottom Round Steak

- Value steak
- Needs to be tenderized
- Good braise steak

<u>Flank</u>

193 Beef Flank, Flank Steak (Flank Steak)

- Single muscle cut from the flank region
- Prepared practically free of fat; thick connective tissue membrane removed
- Great natural flavor, easy to handle
- All-season cut, from grilling in summer to roulades in winter

- Can be ordered by weight only; typically 1 to 2 pounds

Plate
1121D&E Beef Plate, Inside Skirt Steak, Boneless (Skirt Steak, Fajita Meat)

- Ideal cut for offering a variety of profitable entrees
- Marinate for tenderness flavor
- Grill, broil or stir-fry
- A Texas-born favorite; the original cut for fajitas, one of America's best-selling ethnic entrees
- Can be ordered by weight only

Resources
For more information on steaks, visit:

- Steak cut finder
  http://www.BeefRetail.org/ImagesRecipes.aspx
  http://www.beeffoodservice.com/cutsearch.aspx

- Steak recipes and images
  http://www.BeefRetail.org/ImagesRecipes.aspx
  www.BeefItsWhatsForDinner.com/Recipes.aspx
  http://www.BeefFoodservice.com/recipesearch.aspx

- Retail Sales Data
  www.BeefRetail.org/SalesData.aspx

- Beef cut charts
  http://beefretail.org/beefcutcharts.aspx

- Beef Culinary Innovation Center
  http://www.culinaryinnovationcenter.com/

- NAMP Meat Buyer's Guide
  www.MeatBuyersGuide.com

BEEF U

a guide for professionals

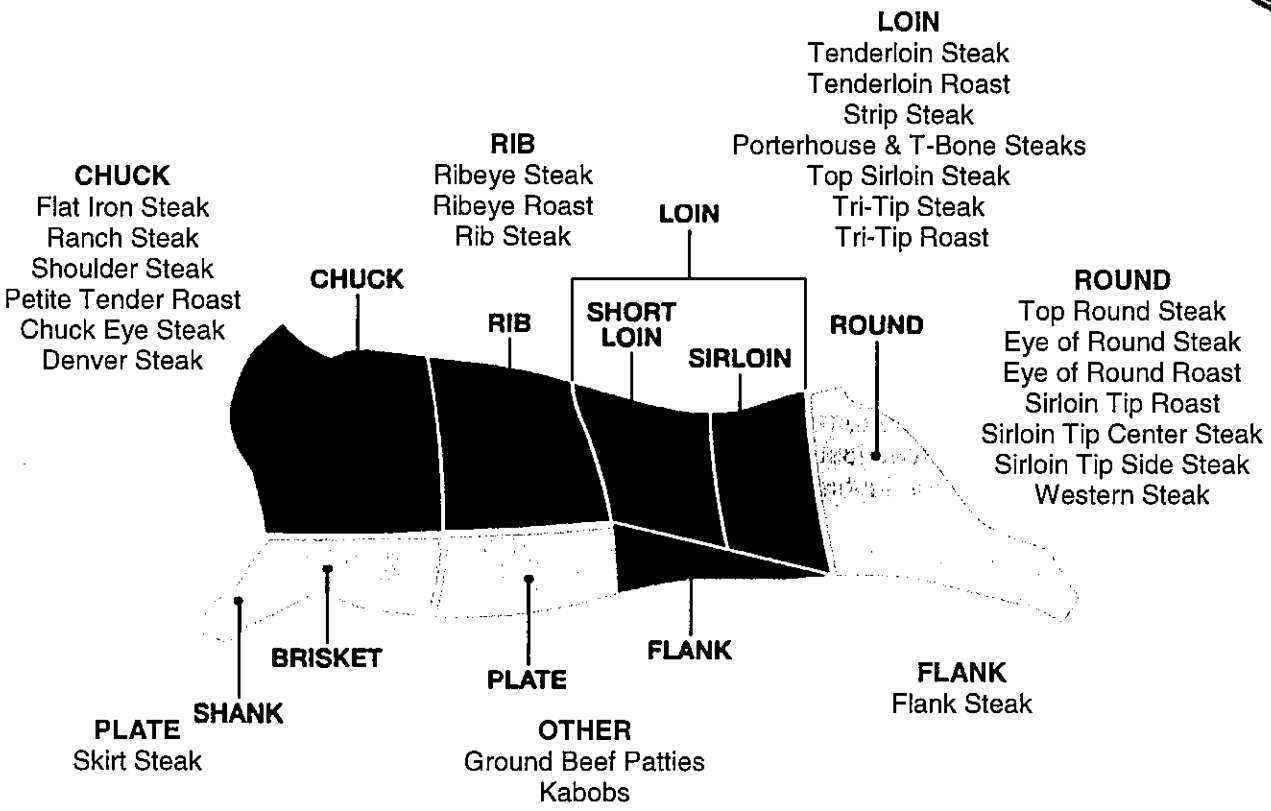
Beef for Grilling

Contents:

BEEF®

Funded by the Beef Checkoff.

Where Beef Grilling Cuts Come From



Marinades and Rubs

A marinade is a seasoned liquid mixture that adds flavor and in some cases tenderizes beef. Marinades are commonly used with thin cuts, such as steaks. Some useful tips about marinating are:

- A flavoring marinade is used with tender beef cuts for a short time — 15 minutes to 2 hours is enough to add flavor
- A tenderizing marinade is used with less tender beef cuts — usually from the Chuck, Round, Flank and Plate and contains a food acid or a tenderizing enzyme
  - Acidic ingredients include lemon or lime juice, vinegar, Italian dressing, salsa, yogurt or wine
  - Tenderizing enzymes are present in fresh ginger, pineapple, papaya, kiwi and figs
- Less tender steaks should be marinated at least 6 hours, but no more than 24 hours. Longer than 24 hours will result in a mushy texture
- Tenderizing marinades penetrate about 1/4 inch into the beef
- Marinate in a food-safe plastic bag or in a nonreactive glass or stainless steel container in the refrigerator
- Turn beef occasionally to allow even exposure to the marinade
- Allow 1/4 to 1/2 cup of marinade for each 1 to 2 pounds of beef
- Always marinate in the refrigerator, never at room temperature
- Never save and reuse a marinade

- If a marinade will be used later for basting, or served as a sauce, reserve a portion of it before adding the beef. Marinade that has been in contact with uncooked beef must be brought to a full rolling boil for at least one minute before it can be used as a sauce.

Rubs

A rub is a mixture of seasonings pressed onto the surface of beef before cooking. Rubs are commonly used on roasts, steaks and ground beef patties. Some useful tips about rubs are:

- Dry rubs consist of herbs, spices and other dry seasonings
- Paste-type rubs are dry seasonings held together with small amounts of wet ingredients, such as oil, crushed garlic, mustard, soy sauce, Worcestershire sauce and horseradish
- Rubs add flavor and form a delicious crust
- Rubs can be applied just before cooking. For more pronounced flavor, apply rub and refrigerate for several hours

Grilling Tips

Determining Doneness

Grill most steaks to medium rare (145°F) to medium (160°F) doneness for best results. [Grill steaks from the round to medium rare (145°F). Do not overcook.] Determine doneness with an instant-read thermometer or make a small slit near the bone (or center of boneless steak) and check the color. At medium rare, beef will be pink in the center and slightly brown toward the exterior.

Grilling Safety Tips

- Wash hands well in hot soapy water before and after handling meat and other fresh foods.
- Cook beef to its proper internal temperature:
  - Ground Beef 160°F
  - Steaks 145°F to 160°F
- Do not reuse plates or utensils that were used for raw meats without washing in hot soapy water first.
- Refrigerate leftovers promptly after serving (within 2 hours after cooking).

3 Simple Steps to **Direct** Grilling Beef Steaks & Burgers

1. Prepare grill (charcoal or gas) according to manufacturer's directions for medium heat.
2. Season beef (directly from the refrigerator) with herbs or spices, as desired. Place on cooking grid.
3. Grill according to chart, turning occasionally. After cooking, season beef with salt, if desired.

3 Simple Steps to **Direct** Grilling Beef Roasts

Prepare grill (charcoal or gas) according to manufacturer's directions for medium heat.

1. Season beef (directly from refrigerator) with herbs or spices, as desired. Place on cooking grid.
2. Cover with grill lid and grill over medium heat for time indicated in chart or until thickest part of roast reaches internal temperature as specified, turning occasionally. Transfer roast to carving board; tent loosely with aluminum foil. Let roast stand 10 minutes. (Temperature will continue to rise about 5°F to reach desired doneness and roast will be easier to carve.)

Favorites for the Grill

Special Steakhouse Favorites
Tenderloin Steak
Porterhouse/T-Bone Steaks
Strip Steak
Strip Filet
Ribeye Steak
Ribeye Filet
Rib Steak
Flat Iron Steak

Everyday Steak Favorites
Top Sirloin Steak
Top Sirloin Filet
Flank Steak
Top Round Steak
Eye of Round Steak
Shoulder Steak
Ranch Steak
Petite Tender Medallions
Chuck Eye Steak
Denver Steak
Sirloin Tip Center Steak
Western Griller Steak
Skirt Steak

Roast Favorites
Tenderloin Roast
Eye of Round Roast
Tri-Tip Roast
Petite Tender Roast

Other Grill Favorites
Ground Beef Patties
Kabobs
Back Ribs
Short Ribs

Beef Grades and Serving Size

Choice is the most widely available beef grade, and these steaks grill up juicy and delicious. Because Select steaks have less marbling, they tend to be a bit less tender, juicy and flavorful.

Two (3-ounce) cooked, trimmed servings of beef equal the USDA's recommended daily serving for meats. Typically, one steak is equal to one serving. More generous-sized steaks can weigh 6 to 8 ounces uncooked so one of these steaks may be an entire recommended daily amount for meat. (Remember: 4 ounces boneless raw beef usually yields 3 ounces cooked, trimmed beef.)

Grilling Guidelines:

For charcoal grilling, when coals are medium, ash-covered (approximately 30 minutes), spread in single layer and check cooking temperature. Position cooking grid. To check temperature, cautiously hold the palm of your hand above the coals at cooking height.

Count the number of seconds you can hold your hand in that position before the heat forces you to pull it away; approximately 4 seconds for medium heat.
For gas grilling, gas grill brands vary greatly and grilling times may need to be adjusted. Consult owner's manual for specific grilling information.

Trim visible fat before grilling to help prevent flare-ups. If food is grilled over too high heat, the exterior can become overcooked or charred before the interior reaches the desired doneness. Charring is not recommended.

*Remove from grill when internal temperature(s) reaches 135°F for medium rare; 150°F for medium doneness. Let stand 5 minutes.
**Remove from grill when internal temperature(s) reaches 140°F for medium rare; 155°F for medium doneness. Let stand 5 minutes.

Beef Grilling Guidelines

Note: Chart guidelines were developed using Weber Genesis gas grills.

			Approximate Cooking Time for Medium Rare (145) to Medium (160)	
Beef Cut		Weight/ Thickness	Charcoal	Gas
CHUCK	Chuck Eye Steak, boneless	¾ inch	9 to 11 minutes	9 to 12 minutes
		1 inch	12 to 14 minutes	13 to 17 minutes
	Top Blade Steak, boneless	¾ inch	6 to 9 minutes	6 to 9 minutes
		1 inch	9 to 13 minutes	10 to 13 minutes
	Flat Iron Steak	8-oz each	10 to 14 minutes	12 to 16 minutes
	Shoulder Steak, boneless (marinate)	3/4 inch	8 to 12 minutes	9 to 12 minutes
		1 inch	12 to 17 minutes	15 to 19 minutes
	Ranch Steak	3/4 inch	8 to 11 minutes	8 to 11 minutes
		1 inch	11 to 14 minutes	12 to 16 minutes
	Petite Tender Roast	8 to 12-oz each *	14 to 18 minutes	14 to 19 minutes
	Denver Steak	1/2 inch	4 to 7 minutes	5 to 8 minutes
		3/4 inch	7 to 10 minutes	8 to 11 minutes
		1 inch	10 to 14 minutes	12 to 17 minutes
RIB	Rib Steak, small end	3/4 inch	7 to 10 minutes	7 to 10 minutes
		1 inch	10 to 15 minutes	10 to 15 minutes
		1-1/2 inches **	19 to 24 minutes	20 to 25 minutes
	Ribeye Steak	3/4 inch7 to 10 minutes	7 to 9 minutes	
		1 inch	10 to 14 minutes	9 to 14 minutes
		1-1/2 inches **	16 to 20 minutes	15 to 19 minutes
LOIN	Porterhouse/T-Bone Steak	3/4 inch	8 to 11 minutes	9 to 13 minutes
		1 inch	11 to 16 minutes	15 to 19 minutes
		1-1/2 inches **	19 to 24 minutes	20 to 25 minutes

	Strip Steak, boneless	3/4 inch	7 to 10 minutes	7 to 10 minutes
		1 inch	11 to 14 minutes	11 to 15 minutes
	Tenderloin Steak	3/4 inch	7 to 10 minutes	7 to 10 minutes
		1 inch	10 to 14 minutes	11 to 15 minutes
		1-1/2 inches **	14 to 18 minutes	16 to 20 minutes
SIRLOIN	Top Sirloin Steak, boneless	3/4 inch	7 to 11 minutes	8 to 13 minutes
		1 inch	11 to 15 minutes	13 to 16 minutes
		1-1/2 inches *	22 to 26 minutes	24 to 30 minutes
	Tri-Tip Steak	3/4 inch	8 to 10 minutes	8 to 10 minutes
		1 inch	10 to 14 minutes	10 to 14 minutes
ROUND	Sirloin Tip Center Steak	3/4 inch	8 to 9 minutes	8 to 11 minutes
		1 inch	11 to 13 minutes	13 to 15 minutes
	Sirloin Tip Side Steak (marinate)	3/4 inch	9 to 11 minutes	7 to 9 minutes
		1 inch	12 to 14 minutes	13 to 14 minutes
	Western Steak	3/4 inch	8 to 10 minutes	11 to 14 minutes
		1 inch (marinate)	12 to 15 minutes	15 to 17 minutes
		1-1/4 inches	18 to 20 minutes	18 to 20 minutes
	Top Round Steak (marinate)	3/4 inch	10 to 11 minutes	10 to 11 minutes
		1 inch	12 to 14 minutes	16 to 19 minutes
		1-1/2 inches	20 to 23 minutes	20 to 23 minutes
	Eye of Round Steak (marinate)	3/4 inch	10 to 12 minutes	10 to 12 minutes
		1 inch	13 to 15 minutes	17 to 19 minutes
PLATE & FLANK	Skirt Steak (marinate)	1 to 1-1/2 pounds	7 to 12 minutes	8 to 12 minutes
	Flank Steak (marinate)	1-1/2 to 2 pounds	11 to 16 minutes	16 to 21 minutes
OTHER	Ground Beef Patties-Cook to Medium Doneness (160 degrees F)	1/2 inch (4-oz each)	8 to 10 minutes	7 to 9 minutes
		3/4 inch (6-oz each)	11 to 15 minutes	13 to 14 minutes

	Kabobs, beef only	1 x 1-1/4 inches (1 pound)	5 to 7 minutes	7 to 9 minutes

Resources:
For more information on grilling beef, visit:

- Grilling cuts
  http://www.BeefRetail.org/ImagesRecipes.aspx
  http://www.beeffoodservice.com/cutsearch.aspx

- Grilling recipes and images
  http://www.BeefRetail.org/ImagesRecipes.aspx
  www.BeefItsWhatsForDinner.com/Recipes.aspx
  http://www.BeefFoodservice.com/recipesearch.aspx

- Retail sales data – Top Grilling Cuts
  www.BeefRetail.org/SalesData.aspx

- 3 Simple Steps for Grilling Beef
  http://www.beefitswhatsfordinner.com/grilling.aspx

- Consumer Information on Beef
  www.BeefItsWhatsForDinner.com
  http://www.epaperflip.com/aglaia/viewer.aspx?docid=a3a6b561fc3043ba8a0db27ef94bf8f5

BEEF U

a guide for professionals

Product Information: Roasts

Contents:

- Oven Roasts
- Pot Roasts
- Briskets

BEEF®

Funded by the Beef Checkoff.

Definition of a Roast

- A cut of beef more than two inches thick and larger than a steak. It may contain bone and is often comprised of more than one major muscle.
- Tender roasts from the rib and loin are recommended for dry heat cooking (oven roast or in a covered grill using indirect heat)
- Less tender beef roasts from the chuck and round are called pot roasts and are recommended for moist heat cooking (slow cooker or braising)

General Oven Roast Info

Oven roasting is a way of cooking by dry heat, resulting in a beautiful outside and tender, juicy inside. Typically, the most tender beef cuts are those that are prepared using this dry heat cooking method, with Beef Rib being the most popular, followed by Beef Tenderloin.

Both of these popular cuts offer a choice in portion size and can be sliced to different thickness, which means your menu can have a range of portion sizes to satisfy varying patron tastes. It also allows you to offer large portion specials when needed, making your menu flexible and versatile.

Oven roasts are ideal for dishes prepared with a special rub, sauce or seasoning. Customers are often willing to pay a premium for a "signature" items, and oven-roasted beef roasts provide the stunning presentation and memorable experience that consumers crave.

Another benefit to oven roasts is the multitude of ways in which they can be used. In addition to traditional applications, surprise and delight your customers with a variety of menu additions utilizing roasts:

- Beef up breakfast with dishes like Roast Beef Hash, South-of-the-Border Scramble, Beef Biscuits and Gravy, or a Breakfast Beef Burrito
- Add to appetizers with Roast Beef Sliders, Beef and Asparagus Roll-Ups or Beef and Sun-Dried Tomato Toasts
- Extend soups like Beef & Barley or Minestrone with the addition of diced roast beef
- Create salad specials like a Greek Beef Salad, Roast Beef Caesar, Cowboy Cobb, Thai Beef Salad or Roast Nicoise
- Offer entrée specials using roast beef: pasta, pizza, Santa Fe-Style Roast Beef with southwestern spices, or Kung Pao Beef

Cooking a Perfect Oven Roast

- Season with an herb rub
- Roast or grill
- Place on rack in shallow roasting pan when preparing in an oven
- Do not add water and do not cover
- Cook between 325°F and 425°F depending on roast
- Use an ovenproof meat thermometer to check doneness

Premium vs. Value

Premium Roasts

- Tenderloin Roast
- Rib Roast
- Ribeye Roast
- Strip Roast

Value Roasts

- Top Sirloin Roast
- Tri-Tip Roast
- Round Roast
- Round Rump (Steamship, Baron of Beef)
- Sirloin Tip Roast
- Outside Round (Flat)

Tenderness Ranking—Oven Roasts

The most tender beef oven roasts, in order from most tender, are:

- Tenderloin
- Strip Roast
- Ribeye Roast

Nutrition Lean List—Oven Roasts

The leanest beef oven roasts, in order from most lean, are:

- Round Roast
- Top (Inside) Round Roast
- Top Sirloin Roast
- Brisket Flat
- Sirloin Tip Center Roast
- Round Rump Roast (Steamship, Baron of Beef)
- Arm Chuck Roast
- Outside Round (Flat) Roast
- Tri-Tip Roast
- Tenderloin Roast

Individual Cut Information—Oven Roasts

Chuck

116H Beef Chuck, Chuck Eye (IM)

- This muscle group is an extension of the Ribeye
- Sometimes referred to as the "mock Ribeye"

Rib—Bone In

(Beef Standing Rib, Beef "Prime" Rib)

107 Beef Rib, Oven-Prepared

109 Beef Rib, Roast-Ready

109A Beef Rib, Roast-Ready, Special (feather bones removed)

109D Beef Rib, Roast-Ready, Cover Off, Short-Cut (Export Style)
109E Beef Rib, Ribeye Roll, Lip-On, Bone In (Export Style)

- Most regal and classic of beef roasts, ranging from 14 to 22 pounds
- Flavorful, bone-in cut offers dramatic appearance
- Exceptional taste and tenderness
- "Prime Rib" signifies the first seven beef ribs between the chuck and the short loin; most popular menuing application for the beef rib cut
- The term "prime" used with this cut many times does not indicate the grade U.S. Prime
- Another impressive application involves cutting off a portion from the roast, adding a dry rub and then grilling to order, creating 2 menu items when you offer "Prime" Rib and Cowboy Steak

Rib—Boneless
(Beef Ribeye Roast, Boneless Beef "Prime" Rib, Boneless Beef Rib Roast)
110 Beef Rib, Roast-Ready, Boneless
112A Beef Rib, Ribeye, Lip On
112 Beef Rib, Ribeye Roll
112C Beef Rib, Ribeye (IM)

- Most often used for "Prime" Rib menu options because this boneless item is easier to vary portion size
- Convenient and versatile
- Perfect for menuing several portion sizes and varying degrees of doneness
- Excellent for buffet service or carving at the guest table
- Boneless cut can be sliced into steaks of any thickness or served as a hot buffet roast

Loin
(Beef Tenderloin Roast, Chateaubriand, Filet Mignon Roast)
189, 189A Beef Loin, Tenderloin, Full
190, 190A Beef Loin, Tenderloin, Full, Side Muscle Off, Defatted
191, 191A, 191B Beef Loin, Tenderloin, Butt

192 Beef Loin, Tenderloin, Short

- A menu superstar
- The most tender beef cut
- Premium, classic, well-loved
- Easy to portion and prepare, weighing from 2 to 7 pounds
- Perfect for carving stations
- PSMO: another name for the full tenderloin with the side muscle on and all outside fat removed (IMPS/NAMP 189A)
- Silver Skin: connective tissue that surrounds the major tenderloin muscle
- Peeled: all outside fat and connective tissue removed

Loin
(Beef Strip Loin)

175 Beef Loin, Strip Loin, Bone In
180 Beef Loin, Strip Loin, Boneless

- Typically cut into steaks, but can also be roasted
- Range from 8 to 14 pounds
- Among the top five most tender beef cuts
- Highly valued cuts

Sirloin
(Beef Sirloin, Beef Top Butt)
184, 184A Beef Loin, Top Sirloin Butt, Boneless
184B Beef Loin, Top Sirloin Butt, Center-Cut, Boneless, Cap Off (IM)
184D Beef Loin, Top Sirloin, Cap (IM)
184E Beef Loin, Top Sirloin Butt, Boneless, 2-piece (184B +184D)
184F Beef Loin, Top Sirloin Butt, Center Cut, Boneless, Seamed, 2-Piece (smaller piece referred to as Baseball Cut)

- Boneless cut located between the short loin and round, separated from the Bottom Sirloin through a natural seam
- Cooked as a roast for sandwiches and sliced beef salad

185B Beef Loin, Bottom Sirloin Butt, Ball Tip, Boneless (IM) (Beef Ball Tip, Beef Sirloin)

- Less tender than Top Sirloin

185C, 185D Beef Loin, Bottom Sirloin Butt, Tri-Tip, Boneless (IM) (Beef Tri-Tip)

- A west coast favorite and one of the "best kept secrets"
- Classic cut grilled in the Santa Maria BBQ
- Triangular shape provides varying degrees of doneness
- Can be roasted, grilled, broiled or done on the rotisserie
- A multitude of serving ideas: sliced with sauce or relish, in sandwiches, as London Broil, as beef hash, or sliced in BBQ

Round
166B Beef Round, Rump and Shank Partially Off, Handle On (Baron of Beef, Steamship Round)

- A classic
- Impressive for carving stations or hot buffets

168 Beef Round, Top (Inside), untrimmed
169 Beef Round, Top (Inside)
169A Beef Round, Top (Inside), Cap Off

- Buffet carving classic
- Leftovers great for use in sandwiches or salads

167 Beef Round, Knuckle (Tip)
167A Beef Round, Knuckle (Tip), Peeled
167D Beef Round, Knuckle (Tip), Peeled, 2-Piece (167E +167F)
167E Beef Round, Knuckle (Tip), Center Roast (IM)

- One of the three major muscle groups in the round

- Works with dry or moist heat cooking methods
- Great when thinly sliced for sandwiches
- More economical cut

171B Beef Round, Outside Round (Flat)
171D Beef Round, Outside Round, Side Muscle Removed (IM)

- Works well with slow roasting/barbecue or moist heat cooking
- Great for stews, shredded for tamales, hash and cassoulet
- Tenderizing is recommended
- More economical cut

171C Beef Round, Eye of Round (IM) (Beef Eye Round)

- Works with dry or moist heat cooking methods
- A smaller roast, great when sliced for sandwiches
- More economical cut

General Pot Roast Info

"Cooking under cover, "also known as braising or stewing, relies on the steam from simmering liquid to turn less tender cuts of beef into richly flavored, fork-tender favorites. It's a time-tested tradition of cooking that's making a comeback as part of the comfort foods trend.

Less tender cuts are ideal for braising or stewing. To determine a cut's tenderness, first look at the amount of connective tissue—less tender cuts have a larger amount of connective tissue. Next, look at the location of the cut. Cuts that have been taken from the front and rear of the animal, such as the chuck and the round, have been more heavily exercised and, therefore, can be less tender.

The key to successful braising or stewing is gentle simmering with a cover. Using a low temperature over the proper length of time converts the collagen (a type of connective tissue) into tender gelatin. Brown beef in a heavy bottomed pan to add flavor. Add liquid: broth, water, juice, beer or wine. Cook in a tightly covered pan for 2 to 3 hours in oven, on low heat, on stove top or in slow cooker. Use braising juices to create gravy. Use a fork to test if the meat is done to perfection.

Here are some benefits to cooking under cover:

- A large supply of economical beef cuts that are easy to prepare in large volumes make it both convenient and appropriate for regular and takeout menus
- It's easy to create "signature dishes" that have a great presentation and are unique
- The complex, intense flavors of the cooking liquid are ideal for full-bodied, rich sauces
- By varying your technique, you can create a host of dishes: Mexican shredded beef to Italian Braciola to Yankee Pot Roast
- Customers crave the unbeatable, rich flavor and taste of "home cooked" meals

- Nothing evokes memories like a good, old-fashioned pot roast—right on trend with comfort foods
- Braised beef holds and reheats well for leftovers

Nutrition Lean List—Pot Roasts

The leanest beef pot roasts, listed in order from most lean, are:

- Eye of Round Roast
- Beef Round, Bottom Round, Heel
- Beef Round, Knuckle (Tip)
- Beef Round, Outside Round
- Arm Chuck Roast

Individual Cut Information—Pot Roasts

Chuck

114, 114C Beef Chuck, Shoulder (Clod)

114E Beef Chuck, Shoulder (Clod), Arm Roast PSO1 (Beef Clod Heart or Beef Shoulder Center Roast)

- Weighs 13 to 21 pounds; contains two major muscle groups that are among the top five most tender muscles in the entire carcass
- 114E consists of the large muscle system of the thick end of the clod; menu as mock brisket or pot roast
- Offers operators value because it's an economical cut that can be used in a variety of entrees: pot roasts, stews, soups, stroganoff, shredded fillings for tacos and sandwiches

116A Beef Chuck, Chuck Roll

116B Beef Chuck, Chuck Tender (Beef Chuck Mock Tender)

116D Beef Chuck, Chuck Eye Roll (Beef Chuck Eye Roast)

116E Beef Chuck, Under Blade Roast

116G Beef Chuck, Edge Roast (IM)

- Great taste at an economical price; provides good profit opportunities
- Perfectly suited to today's comfort foods and ethnic trends
- Less tender, require long, slow simmering
- Great for high-volume cooking; reheats well

Round

171B Beef Round, Outside Round (Flat)

171D Beef Round, Outside Round, Side Muscle Removed (IM)

171E Beef Round, Outside Round, Side Roast (IM)

- Perfectly suited to today's comfort foods and ethnic trends

General Brisket Info

- Delicious, affordable and ideal for a variety of profitable dishes
- Popular barbecue and ethnic comfort food
- Boneless cut perfect for popular sandwiches and value entrees
- Adapts well to dry rubs, mops or marinades
- Ideal for slow cooking or braising

- Deckle is the fat and lean between the bone and the main muscle of the brisket
- Corned Beef Brisket is made by pickling or curing fresh brisket; the name is derived from the "corns" or coarse grains of salt, traditionally used to preserve beef
- Store fresh roast in the refrigerator for 3 to 4 days. Store frozen roast in the freezer for 6 to 12 months
- Always defrost frozen roast slowly in the refrigerator
- Before cooking, pat roasts dry with a paper towel for better browning
- When roasting, place roast on a rack in a roasting pan to allow fat to drip away during cooking

Individual Cut Information

120 Beef Brisket, Deckle-Off, Boneless (Whole Beef Brisket)
120A Beef Brisket, Flat Cut, Boneless (IM) (Beef Brisket Flat Cut, Beef Brisket First Cut, Beef Brisket Thin Cut)
120B Beef Brisket, Point Cut, Boneless (IM) (Beef Brisket, Point)
120C Beef Brisket, 2-Piece, Boneless (120A+120B)

- Only two briskets per beef carcass, located in the breast section beneath the chuck, under the first five ribs
- IMPS/NAMP 120: deckle removed at natural seam; lean surface below closely trimmed
- IMPS/NAMP 120A: deep pectoral muscle from boneless brisket; no less than ½ inch thick at any point; trimmed practically free of fat
- IMPS/NAMP 120B: superficial pectoral muscle from a boneless brisket; no less than ½ inch thick at any point; trimmed practically free of fat
- IMPS/NAMP 120C: No. 120A and 120B packaged together

Traditional Preparation Styles

- Texas-Style: Traditionally, Texas Barbecued Beef Brisket is rubbed with a dry rub consisting of sugar, salt, pepper, paprika and ground red pepper. It's quickly seared, then smoked at a low temperature for hours. A simple mop sauce is applied during smoking.
- Jewish-Style: First, the brisket is dry-rubbed with spices like salt, pepper and paprika. It's then braised, generally with garlic, onions, tomatoes and other seasonings, until tender.
- St. Patty's-Style Corned Beef: Covered with liquid, then simmered slow until tender. After the fat is trimmed, it's typically finished with a simple apple jelly glaze and served with steamed vegetables, like cabbage, potatoes, onions and carrots.

Resources

For more information on roasts, visit:

- Roast cut finder
  http://www.BeefRetail.org/ImagesRecipes.aspx
  http://www.beeffoodservice.com/cutsearch.aspx

- Roast recipes and images
  http://www.BeefRetail.org/ImagesRecipes.aspx
  www.BeefItsWhatsForDinner.com/Recipes.aspx
  http://www.BeefFoodservice.com/recipesearch.aspx

- Retail Sales Data – Roasts
  www.BeefRetail.org/SalesData.aspx

- Beef cut charts
  http://beefretail.org/beefcutcharts.aspx

- Beef Culinary Innovation Center
  http://www.culinaryinnovationcenter.com/

- NAMP Meat Buyer's Guide
  www.MeatBuyersGuide.com

BEEF U
a guide for professionals

Beef for the Holidays

Contents:

BEEF®

Funded by
the Beef Checkoff.

Beef for the Holidays

When the holidays roll around and busy cooks become even busier, it's time to rely on special holiday beef roasts. A beef roast is the perfect entrée for entertaining. Easy to prepare yet impressive, there's a beef roast to suit every budget, party size and host's personal taste. Roasts are the holiday dinner solution.

As the centerpiece to a special meal, a roast is simple to build a menu around — from traditional potatoes to trendy polenta or couscous. Because consumers purchase more roasts during the holidays than any other time of year, it's important to keep the meat case well stocked with a variety of roasts for all their entertaining needs.

Helping Shoppers Choose the Right Roast

During the holidays, it's a good idea to encourage your customers to order an exact type and size roast in advance.

Remind shoppers that when deciding what size to purchase, to think about holiday appetites and second helpings. The typical portion is 3 ounces cooked, trimmed beef. Generally, a boneless beef roast yields 3 to 4 (3-ounce) cooked, trimmed servings per pound. A bone-in roast yields about 2 to 3 (3-ounce) cooked, trimmed servings per pound.

The chart below will guide consumers when choosing a beef roast for a special occasion. The highlights are great tips to ensure roasting success.

Beef Cut	Highlights
Rib Roast	• Great for classic holiday gatherings (order from the small end)
Ribeye Roast	• Great for classic holiday gatherings (order from the small end) • Easy to carve
Tenderloin Roast	• Great for classic holiday gatherings • Order small roast for smaller gatherings • Easy to carve
Round Tip Roast or Round Sirloin Tip Center Roast	• Ideal for health-conscious party planners • Easy to carve
Eye Round Roast	• Ideal for health-conscious party planners • Suitable for small gatherings • Easy to carve
Top Round Roast	• Ideal for health-conscious party planners • Easy to carve
Tri-Tip Roast	• Suitable for small gatherings • Easy to carve
Chuck Eye Roast Boneless	• A great value and simple to prepare • Suitable for small gatherings
Petite Tender Roast	• Tender value cut • Can be portioned into medallions

Tips for Holiday Roasts

There are three simple steps to roasting:

1. Heat oven to the specified temperature
2. Place the roast (directly from the refrigerator) fat side up on a rack in a shallow roasting pan
    - Cook plain, or season to enhance flavor
    - Insert meat thermometer centered in the thickest part of the roast (not in fat or touching bone)
    - Do not add water; do not cover unless specified
3. Roast according to chart time
    - Transfer roast to carving board; tent loosely with foil
    - Let roast stand 15-20 minutes before serving

Determining Doneness

- Use an oven-proof meat thermometer to monitor the internal temperature of the roast while it is cooking, inserting the tip of the thermometer into the thickest part of the roast, not resting in fat or touching bone.
- Prevent overcooking by removing your roast from the oven when it is 5-10 degrees below desired doneness.
- Tent roast loosely with aluminum foil after removing from the oven and allow it to rest 15-20 minutes.
- Resting allows the roast to firm up, making it easier to carve.
- Always use a sharp carving knife.
- For uniform slices, always hold the knife at the same angle for each cut.

How to Carve a Bone-In Roast

Step 1: Cutting the Slice

If necessary, remove a thin slice from the larger end of the roast, so it will stand firmly, flat on the carving board. Place the roast on its large end on the board. Insert carving fork from the side, below the top rib, to hold the roast steady. Carve across the "face" of the roast toward the rib bone.

Step 2: Cutting from the Bone

Cut along the rib bone with the tip of the knife to release the slice of beef. Slide the knife under the beef slice. Hold it steady from above with carving fork and lift the slice from the roast onto a serving platter or guest's plate.

Merchandising Roasts

Prepare the meat department for the Q4 boost in beef demand by following these proven merchandising techniques.

- Feature beef in weekly ad activity: Beef accounts for more than 50% of total meat department sales, and research shows that advertised specials draw even more shopper attention to the meat case. In fact, featuring beef increases sales, even if the price shown isn't a sale price.

- Stock the cuts your shoppers want: Increased beef sales will improve cash flow during the prime holiday time. To help, we have data on the most popular cuts by region and time of year, and merchandising materials to promote beef's most convenient cuts. Review sales data on BeefRetail.org to find out which beef cuts will sell best for your store.

- Raise Roasting Confidence: Shoppers find roasting intimidating, while others simply need inspiration. Offer roasting tips and new recipes at your meat counter to increase consumers' roasting confidence.
    - Refer to roast images and recipes in shopper communications, weekly ads and in stores. Developed by leading beef culinary experts, all recipes feature no more than six pantry-friendly ingredients, keeping it simple and allowing you the opportunity to cross-merchandise throughout the store.
    - Distribute 3 Simple Steps Cooking Resources to build consumer confidence in Oven Roasting and Pot Roasting.
    - Drive shoppers to visit the online Butcher Counter – a mobile-friendly interactive meat case on the new BeefItsWhatsForDinner.com.
    - Package roasts with pop-up timers to give shoppers confidence in preparing roasts.

Resources
For more information on entertaining with roasts, visit:

- Roast recipes and images
  http://www.BeefRetail.org/ImagesRecipes.aspx
  www.BeefItsWhatsForDinner.com/Recipes.aspx

- Beef cut charts
  http://BeefRetail.org/BeefCutCharts.aspx

- Top selling beef roasts
  http://BeefRetail.org/Top10CutLists.aspx

- Three simple steps for oven roasting beef
  http://www.beefitswhatsfordinner.com/ovenroasting.aspx

- Three simple steps for braising/pot roasting beef
  http://www.beefitswhatsfordinner.com/braisingpotroasting.aspx

- Customer handouts and resources
  http://www.beefretail.org/customerhandoutsandresources.aspx

Ground Beef

BEEF U
a guide for professionals

Contents:

BEEF®

Funded by
the Beef Checkoff.

What is Ground Beef?

In order to be labeled "Ground Beef," a ground product must be 100% beef but cannot contain more than 30% fat. The lean to fat ratio is expressed on the label as follows: 80% lean/20% fat. Ground Beef does not contain water, phosphates or other additives.

Packages may indicate the primal cut of beef that has been ground, such as Ground Chuck, Ground Round or Ground Sirloin. Most Ground Beef is not graded; however, operators or retailers wishing to make a quality claim may do so provided the raw materials meet quality standards.

Why is Ground Beef So Popular?

Ground Beef continues to be a consumer favorite. Decades ago it was one of the very first convenience foods sold in supermarkets. Today, Ground Beef is very much in demand with both retail shoppers and foodservice patrons for its versatility and high comfort-food factor. In fact, Ground Beef is the number one selling beef item in both foodservice and retail, totaling over 7.5 billion pounds sold in 2013.

- Performs well under many different cooking methods
- Suits a variety of recipes across day parts and cuisine types
- Available for sale in a variety of pack sizes and price points
- Easy to prepare at home; less intimidating to retail shoppers

The Better Burger Boom: Ground Beef at Foodservice

- Ground Beef is the dominant force in foodservice for beef, comprising 63% of total volume sales
- 75% of beef dishes at foodservice are Ground Beef entrees and hamburgers
- Large portion of Ground Beef sales increase due to the "Better Burger" boom of recent years and continued growth of quick-service and fast casual operations

Types of Ground Beef

In addition to price and personal preference, Ground Beef purchases should be based on the application. Ground Beef is available in regular grind, used for burgers, meatballs and meatloaves, and coarse grind, typically used for chili.

70% Lean

Not less than 70% lean (usually a 73/27 or 75/25 lean-to-fat ratio). Used for burgers and in recipes calling for browning (crumbles) and pouring off drippings, such as chili, tacos and spaghetti sauce. When properly cooked, it is moist and juicy.

80-85% Lean

Holds its shape well during cooking, therefore ideal for meatloaf, meatballs and Salisbury steak. When properly cooked, it is moist, juicy and has a slightly firm texture.

95% Lean

Meets government guidelines for lean, with only 149 calories per 3-ounce serving. If used for burgers, do not over-handle the beef or overcook. When properly cooked, it has a firm, dense texture. Best for recipes in which the drippings are not drained, such as

stuffed peppers or stuffed shells.

Purchasing, Storage and Handling

Purchasing

- Look for Ground Beef with a bright, cherry red color.
- A darker, purplish-red color is typical of vacuum-packed Ground Beef or the interior of packaged Ground Beef. Once exposed to air it will turn bright red.

Storage

- Store fresh ground beef under refrigeration for 1 to 2 days
- Store frozen ground beef in the freezer for 3 to 4 months

Handling

- Always defrost frozen ground beef slowly under refrigeration
- Handle ground beef gently when making burgers or meatloaf

Optimum Storage

Refrigerator Storage: (35° F to 40° F)
Store Packed: 1 to 2 Days
Fresh Vacuum Packed: (unopened) Up to 14 Days

Freezer Storage: 0° F or Colder 3 to 4 Months

Yield/Servings

1 pound yield: 4 (3-ounce) cooked servings or 2 cups cooked crumbles

Type of Product:	Storage Temperatures:	Storage Times: *(from date of production)*
Fresh ground beef	Below 40°F and as close to 28°F as possible	1 to 3 days
Fresh vacuum packaged (unopened) ground beef	Below 40°F and as close to 28°F as possible	Up to 14 days (check with supplier)
Frozen ground beef	0°F or below	Up to 90 days
Refrigerated, cooked ground beef	Below 40°F	2 to 3 days
Frozen, cooked ground beef	0°F or below	Up to 90 days

Handling Guidelines

- Always defrost Ground Beef slowly under refrigeration
- Handle Ground Beef gently when making burgers or meatloaf

Determining Doneness

- Insert an instant read thermometer into the center or thickest part of a meatloaf or meatball or horizontally from the side into the center for patties
- Ground beef should be cooked to an internal temperature of 160°F (medium doneness)

- The color of cooked ground beef is not a reliable indicator of doneness

Labeling

The official USDA requirements of beef ingredients and labeling for different types of ground beef products are established in Chapter 9, Part 319 of the Code of Federal Regulations (9CFR319), entitled, *"Definitions and Standards of Identity or Composition."* In some cases, these definitions are supplemented in various USDA/FSIS manuals and directives. However, the following table summarizes the ingredient and labeling requirements approved for ground beef products by the USDA.

X = Ingredients[1] allowed in these products that are not required to be listed on the label.
P = Ingredients[1] allowed in these products that must be listed on the label.

Category	Skeletal Muscle	Skeletal Trimmings	Head Meat Trimmings	Cheek Meat (limited to 25%)	Added Beef Fat	PDCB (PDCB: Partially Defatted Chopped Beef)	PDBT (PDBT: Partially Defatted Beef Fatty Tissue)	Edible Lean Organ Meats (Trimmed Beef Heart, etc.)	Water, Binders, Fillers, Extenders
Ground Chuck, Ground Round or Chopped Sirloin[2]	X (from identified muscle primal)	X (from identified muscle primal)							
Ground Beef	X	X	X	✓[3]					
Hamburger	X	X	X	✓[3]	X				
Pure Beef Patties	X	X	X	✓[3]		X			
Pure Beef Patty Mix	X	X	X	✓[3]		✓			
Beef Patties	X	X	X	✓[3]	✓	X	✓	✓	✓
Beef Patty Mix	X	X	X	✓[3]	✓	✓	✓	✓	✓

(1) Mechanically Separated (Beef) is inedible and prohibited for use in human food, including ground beef products

(2) This category applies to any specified section of the beef carcass, including those named; "Ground" and "Chopped" may be used interchangeably

(3) If exceeds 2%

The information in this chart is derived from the USDA's "Ingredient Standard List and Labeling Requirements for Ground Beef Products" guide. It's provided for informational purposes only, to aid and assist foodservice personnel, Government Contracting Officer's Technical Representatives (COTRs) and Food Unit Leaders (FDULs) in more easily identifying and determining relative food product quality and value for the product's intended use.

Cooking Methods

Burgers — Charcoal Grill
Grill, uncovered, over medium, ash-covered coals according to chart until instant-read thermometer inserted horizontally into center registers 160°F, turning occasionally.

½ inch thick (4 oz.): 8 to 10 minutes
¾ inch thick (6 oz.): 11 to 15 minutes

Burgers — Gas Grill
Grill, covered, over medium heat according to chart until instant-read thermometer inserted horizontally into center registers 160°F, turning occasionally.

½ inch thick (4 oz.): 7 to 9 minutes
¾ inch thick (4 oz.): 13 to 14 minutes

Burgers — Broil
Broil on rack in broiler pan 3 to 4 inches from heat according to chart until instant-read thermometer inserted horizontally into center registers 160°F, turning once.

½ inch thick (4 oz.): 10 to 12 minutes
¾ inch thick (6 oz.): 12 to 14 minutes

Burgers — Skillet
Heat large nonstick skillet over medium heat until hot. Place patties in skillet; Cook, uncovered, according to chart until instant-read thermometer inserted horizontally into center registers 160°F, turning occasionally.

½ inch thick (4 oz.): 12 to 13 minutes at a distance of 2-3 inches from heat
¾ inch thick (6 oz.): 12 to 14 minutes at a distance of 3-4 inches from heat

Meatloaf
Bake in 350°F oven 1 hour and 10 minutes. Brush meatloaf with barbecue sauce; continue baking 10 to 15 minutes until instant-read thermometer inserted into center registers 160°F. Crumbles

Brown 1 to 1½ pounds Ground Beef in large nonstick skillet over medium heat 8 to 10 minutes, breaking into crumbles and stirring occasionally. Remove from skillet with slotted spoon or pour off drippings. (Note: The color of cooked Ground Beef is not a reliable indicator of doneness. All Ground Beef should be cooked to 160°F.)

Meatballs — Oven
Heat oven to 350°F. Place 2-inch meatballs on rack in broiler pan. Bake 25 to 30 minutes until centers are 160°F.

Meatballs — Skillet
Heat large nonstick skillet over medium heat until hot. Place meatballs in skillet; cook, uncovered, until centers are 160°F, turning occasionally.

Preparation Pointers

Burgers

- Handle Ground Beef lightly. Mix and shape burgers gently but thoroughly to keep them juicy.
- Don't press burgers during cooking in order to retain flavorful juices.

Meatloaves

- Use a gentle touch when mixing and shaping; over mixing can cause meatloaf to be firm and compact after cooking.
- For added flavor and to glaze meatloaf, brush with ketchup, Worcestershire sauce, soy sauce or barbecue sauce during the last 10 to 15 minutes of cooking time.
- For easy shaping of meatloaf, line an 8x4 or 9x5 bread pan with plastic wrap. Firmly press beef mixture into lined pan; invert onto rack in broiler pan. Remove pan and plastic wrap. Use an 8-inch round or square pan for a thinner pizza-style meatloaf that usually cooks more quickly than the traditional-shaped loaf.

Crumbles

- Season crumbles with salt after cooking.
- Cook extra crumbles and freeze for even quicker last-minute meals.

Meatballs

- Use a gentle touch when mixing and shaping; over mixing can cause meatballs to be firm and compact after cooking.
- To save time, bake in a 350°F oven instead of browning in a skillet.

Resources

To learn more about Ground Beef, please visit:

- Ground Beef recipes and images
  http://www.BeefRetail.org/ImagesRecipes.aspx
  www.BeefItsWhatsForDinner.com/Recipes.aspx
  http://www.BeefFoodservice.com/recipesearch.aspx

- Retail Sales Data – Ground Beef
  www.BeefRetail.org/SalesData.aspx

- Consumer Fact Sheets on Ground Beef
  http://www.BeefItsWhatsForDinner.com/factsheets.aspx

- Ground Beef Safety
  http://www.SafeAndSavory160.com
  www.FactsAboutBeef.com
  http://www.BeefResearch.org/beefsafetyresearch.aspx

- USDA Food Safety and Inspection Service
  http://www.fsis.usda.gov/wps/portal/fsis/topics/food-safety-education/

BEEF U

a guide for professionals

Product Information: Beyond Steaks, Roasts and Burgers

Contents:

BEEF

Funded by the Beef Checkoff.

Beef Ribs

Beef Back Ribs

- An old favorite
- Naturally tender
- Usually grilled and glazed for that irresistible charbroiled flavor
- Less expensive cut that offers a variety of profitable options

124 Beef Rib, Back Ribs (Beef Back Ribs)
124A Beef Rib, Back Rib, Rib Fingers (Beef Riblets, Beef Rib Fingers)

- Consists of 7 ribs from the rib section, including the meat between the bone
- Chine bone and feather bones are removed, exposing the sawed ends of the rib bones
- Unless otherwise specified, Back Ribs shall be no less than 6 inches and not more than 8 inches wide at any point, measured across the sawed ends of the rib bones
- 124A consists of the meat between the bones

Beef Short Ribs

- Star ethnic item on trendy menus
- Comfort food: rich, deep flavor that customers crave
- Require long, slow cooking time to tenderize, resulting in moist, tender, full-flavored ribs
- Braising with wine, vegetables, seasonings and stock enhances taste and tenderness

123, 123A,123B,123C Beef Rib, Short Ribs (IM) (Beef Short Ribs)
123D Beef Short Ribs, Boneless (IM) (Boneless Beef Short Ribs)

- Consists of the rib section from any rib and/or plate items; contains at least 2 but no more than 5 ribs (ribs 6 through 10)
- Diaphragm muscle and heavy connective tissue are removed
- Surface fat shall be trimmed to not exceed ¼ inch at any point
- Specify upon purchase the number of ribs and width (distance between the dorsal and ventral) of the rib sections

Beef Flanken/Korean-Style Ribs

- Kalbi, or Korean-style/"flanken-style", short ribs are a 3-rib section cut across the rib bones in ¼ to ½-inch thick slices
- Thinner than Beef Short Ribs
- Makes a great appetizer
- Great vehicle for signature flavor profiles
- Often marinated in a classic Korean-style marinade of soy sauce, sesame oil, garlic, green onions, sugar and chilli pepper

Beef Rib Preparation Ideas

Big Beef Ribs	Smoke, grill and glaze with a spiced chipotle chile baste.
Western Beef Back Ribs	Slow-cook, baste with Kansas City-style BBQ sauce.
Thai-Style Beef Short Ribs	Prepare with soy sauce, white wine vinegar, fresh ginger, onion, garlic and sesame oil.
Latin-Style Beef Short Ribs	Braise in beef demi-glace, red wine, bay leaves, rosemary and fiery chipotle chilies and grill.
Beer-Braised Short Ribs	Rub with chili powder and garlic, then sear over a wood fire and braise in a rich beer and veal stock until moist and tender.
Curried Beef Short Ribs	Braise in a rich curry sauce, garnish with toasted almonds and serve with curry condiments.
Indonesian Beef Satay	Marinate skewered beef in curry powder, turmeric, dark brown sugar, fish sauce and unsweetened coconut milk; grill and serve with satay sauce.
Beef Short Ribs Adobo with Spinach	Simmer beef (bones attached) with vinegar, water, soy sauce, garlic, shallots, black pepper, salt and bay leaves. Remove beef, reduce sauce and sear beef in skillet. Pour reduced sauce over beef; serve with spinach and steamed rice.
Lemongrass Barbecued Beef	Marinate beef in lemon grass, shallots, garlic, serrano chili, sugar, salt, fish sauce, lime juice, sesame oil and toasted sesame seeds. Grill until seared; serve as a rice roll with rice paper, lettuce, mint, coriander, noodles and cucumbers.
Szechuan Braised Beef Noodles with Baby Bok Choy	Quickly marinate beef in sugar, soy sauce, dry sherry, cornstarch and sesame oil (reserve marinade). Stir-fry in peanut oil with hot bean sauce, garlic, fresh ginger and green onions; add reserved marinade, sugar, soy sauce, chicken stock and water; simmer. Place beef in bowl with Chinese egg noodles, beef, carrots and bok choy.
Miso Barbecue Beef Short Ribs with Ginger-Teriyaki Sauce	Marinate ribs in miso, mirin, soy sauce, vinegar, sugar and sesame oil; grill until seared. Serve with Ginger-Teriyaki sauce over noodles or rice.
Ginger-Orange Barbecued Beef Back Ribs	Marinate ribs in lemon, orange juice, fresh ginger, garlic, hoisin sauce, honey, salt and soy sauce (reserve marinade). Roast ribs, glazing with reserved marinade, until browned and crisp. Serve with roasted potatoes and salad.

Beef on a Stick
135B Beef for Kabobs

Or cut your own from these cuts:
192A Beef Loin, Tenderloin Tips
176 Beef Loin, T-Bone Steak Tail
112D Beef Rib, Ribeye Cap Steak (IM)
109B Beef Rib, Rib Cap Roll
114D PSO1 Beef Chuck, Shoulder (Clod), Flat Iron Steak
1114E PSO1 Beef Shoulder, Ranch Steak

General Info

- Shish Kabobs are of Turkish origin, Satay are Indonesian, Brochettes are French, Sosoties are South African, Sekuwas are Nepalese, Pinchos are Argentinean
- Consider the shape of your cut and the varied cooking times for different ingredients
- Skewer ingredients separately or group them together by cooking time
- Use metal skewers (easy to use and clean), bamboo skewers (widely available, must be soaked) or natural materials such as lemongrass and slivers of sugar cane
- To prevent food from randomly rotating, use two skewers
- Satay-style skewers cook very quickly: 1 to 2 minutes per side

Beef on a Stick Preparation Ideas

Cheese Steak Spiedini	Skewer pieces of tender steak with sweet bell peppers and crusty bread cubes, grill and top with melted mozzarella and tomato-basil bruschetta salsa.
Steak and Potato Tempura	Dip skewered strips of tender steak in a light tempura batter, then wrap battered portion of beef with potato strands. Fry until potatoes are crisp and golden brown; serve with a spicy Asian mayo.
Sugarcane Steak Sticks	Thread strips of Cuban-style lime-cumin mojo Flat Iron Steak (marinated in olive oil, lime juice, cumin, garlic, salt and pepper) onto sugarcane skewers; grill and serve with a tangy sweet-onion chimichurri salsa.
Singapore-Style Steak Satay	Marinate steak in lime, honey and coconut milk. Thread onto lemongrass skewers, grill and serve with tamarind peanut sauce with a cucumber and cilantro salad.
Tequilla Lime Ranch Kabobs	Marinate cubes of Ranch Steak in a combination of tequila, lime juice, oil, garlic, cumin, salt and pepper Thread onto skewers with chunks of nopalitos (cactus), onions, mushrooms and bell pepper. Grill to medium rare.
Asian Sticky Skewers	Grill skewers of marinated steak and brush with Southeast Asian-style sticky sauce. Serve with jasmine rice and a

	salad of greens, Thai basil, cilantro and mint, sprinkled with green onions, diced tomatoes, sesame seeds.
Tapas Steak Skewers	Skewer slices of steak marinated in olive oil, garlic and lime. Grill and serve with roasted peppers and onions accompanied by a cumin aioli.

Beef for Stews and Soups

135A Beef for Stewing
135 Diced Beef

- Diced Beef shall be prepared from any portion of the carcass which yields product that meets the end-item requirements, excluding shank and heel meat
- Free of bones, cartilage, heavy connective tissue and lymph glands
- Unless otherwise specified, at least 75% (or 85% for beef for stewing), by weight, of the resulting dices must be ¾ inch to 1½ inch cubes; no individual surface shall be more than 2½inches in length
- Surface and/or seam fat shall not exceed ½ inch thickness
- Beef for Stewing provides the basis for a multitude of home-style entrées such as stews, chilis, pot pie, stroganoff, and pasta toppings, or it can be ladled over noodles, rice or dumplings
- Cut your own beef for stews and soups from IMPS/NAMP 117 Beef Foreshank (Beef Shanks, Osso Buco) or 115D Beef Chuck, Square-Cut, Pectoral Meat (IM)
- Ideal for attracting customers who want "home meal replacements"
- Perfect for takeout menus because they hold well and can be reheated without ruining the dish

Beef for Stew and Soup Preparation Ideas

Beef (Boeuf) Bourguignon	Braise beef in dry red wine, bacon, shallots and bouquet garni and garnish with mushrooms and small onions.
Beef Carbonnade	Stew beef with onion, beer and bacon, then top with a slice of mustard-flavored toasted bread.
Beef Curry	Slowly simmer beef with curry powder, soy sauce, garlic, onion, carrot and celery.
Beef Borscht	Beef soup with beets, cabbage and typically garnished with sour cream.
Beef Barley Soup	A rich beef soup with barley, carrots and mushrooms.
Chunky Beef Chili	Brown beef chunks and braise with onions, garlic, tomatoes, fresh and dried chilies; serve with assorted chili toppers such as sour cream, minced green onions and shredded cheese.
Cajun Beef Stew	Blend tender beef, vegetables and Cajun spices and serve over hot rice.
Beef Pub Pie	Slow-cook and serve in a traditional flaky pastry shell.

Steak Soup Grantinée	A twist on the classic French Onion Soup which combines flavorful chunks of beef, caramelized onions and beef broth, finished with a crouton of French bread and Gruyère cheese.
Beef Goulash Stew	A Hungarian classic of sweet spices and served with homemade croutons and sour cream.

Beef for Stir-Fry & Strip Applications

192A Beef Loin, Tenderloin Tips
176 Beef Loin, T-Bone Steak Tails
112D Beef Rib, Ribeye Cap Steak (IM)
109B Beef Rib, Rib Cap Roll
193 Beef Flank, Flank Steak (IM)

Beef for Stir-Fry and Strip Preparation Ideas

Beef Thai Fry with Thai Peanut Sauce	Marinate and stir-fry steak strips with vegetables, chow mein noodles and Thai Peanut Sauce.
Mongolian Hot Pot	Thinly slice steak, marinate and stir-fry with vegetables and serve over warm noodles.
Beijing Beef	Thinly slice steak and stir-fry with asparagus and red peppers and serve over fresh cabbage.
Mexican Flank Steak and Pepper Stir-Fry Salad	Grill spicy marinated flank steak and toss with stir-fried peppers and onions, and serve on a bed of romaine lettuce.
Teriyaki Beef Stir-Fry with Peanuts	Stir-fry teriyaki-marinated steak strips with Japanese soba noodles, red bell peppers, snow peas, straw mushrooms and peanuts.
Sesame Beef and Broccoli Stir-fry	Stir-fry steak strips and broccoli, serve over a bed of jasmine rice topped with savory garlic stir-fry sauce.
Korean-Style Steak Strips with Mango Fried Rice	Serve strips of tender stir-fried steak over colorful mango-basil fried rice finished with a sweet-hot Korean-style Kalbi barbecue sauce.

Resources

For more information on these cuts and ideas, please visit:

- Beef Cut Finder
  http://www.BeefRetail.org/ImagesRecipes.aspx
  http://www.BeefFoodservice.com/CutSearch.aspx

- Recipes and Images
  http://www.BeefRetail.org/ImagesRecipes.aspx
  www.BeefItsWhatsForDinner.com/Recipes.aspx
  http://www.BeefFoodservice.com/RecipeSearch.aspx

- Beef Cut Charts
  http://BeefRetail.org/BeefCutCharts.aspx

- Beef Culinary Innovation Center
  http://www.CulinaryInnovationCenter.com/

- Beef Product & Market Research
  www.BeefResearch.org

- Beef Sales Data and Market Intelligence
  www.BeefRetail.org/SalesData.aspx
  http://www.BeefFoodservice.com/marketintelligence.aspx

- NAMP Meat Buyer's Guide
  www.MeatBuyersGuide.com

- Beef Innovations Group – New Cuts
  http://www.BeefInnovationsGroup.com/newcutstechnical.aspx
  http://www.BeefInnovationsGroup.com/cutsanimationandresources.aspx

BEEF U

a guide for professionals

Menuing

Contents:

BEEF®

Funded by
the Beef Checkoff.

Menuing Basics

Tastes change. Trends come and go. But through it all, beef remains an enduring favorite and a menu anchor you can count on. It's a proven fact, when you sell a steak - you sell more meal options and increase your profit dollars. From ethnic specialties to American classics, nothing sells, sizzles or satisfies like beef. It's a nutritional powerhouse, it's infinitely adaptable, and year after year, it's what your customers crave. And for you, that means endless ways to add "wow" to your menu. Plain and simple ... beef has it all.

Engineering Your Menu

A menu just may be the single most important marketing material a restaurant operator can develop. It's among the first pieces a diner uses in building their perception of the restaurant and, when carefully orchestrated and well thought-out, can directly affect the restaurant's bottom line. Make your restaurant more profitable by engineering your menu using these tips:

Design & Layout

- Keep your menu style consistent with your concept (i.e., a casual design for a casual restaurant).
- Dollar signs aren't necessary, and perfectly aligned prices draws attention away from the food (something you don't want to do!).
- Avoid using ALL CAPS – it's easier to read a menu in upper and lower case letters.
- Make the font size large enough for all diners to read.
- Be honest in your descriptions of dishes and ingredients, and be sure to list common allergies like milk, eggs, fish, gluten, tree nuts, peanuts, soybeans and shellfish. Consider a separate menu to list common allergy-free offerings.
- Carefully organize and design your menu to direct patrons to your most profitable dishes. Studies have shown that people order the first and last items in acategory, so begin and end your steak list with value cuts like the Flat Iron Steak and Denver Steak.
- Encourage diners to eat more by separating courses into different sections. For instance, instead of listing "First Courses" separate offerings into appetizers, soups and salads. And never put desserts on the main menu – it may keep people from ordering appetizers, salads and first courses.

Beef Lexicon

Surveys among consumers reveal they are more likely to order a "Juicy, Pan-Seared Ribeye with Sautéed Onions and Mushrooms" versus "Ribeye Steak." So fill your menu with mouth-watering words and descriptions of the entire entrée to entice patrons. Here are just a few suggestions to get your patrons hungry. Be creative and use these descriptions to enhance the appeal of the beef entrees currently on your menu:

Cooking Methods:	Preparation Methods:	Serving Methods:
• Grilled • Smoked • Wood-Grilled • Skillet-Grilled • Seared • Pan-Seared • Pan-Roasted • Broiled • Pan-Broiled • Wood-Fired • Sautéed • Pan-Fried • Roasted • Oven-Roasted • Spit-Roasted • Fire-Roasted • Slow-Roasted • Braised • Poached	• Dry-Aged • Blackened • Basted • Marinated • Herb-Crusted • Infused (i.e., Garlic-Infused) • Glazed (i.e., Wine-Glazed) • Smothered • Seasoned • Stuffed • Laced (i.e., Citrus-Laced) • Rubbed • Dry-Rubbed	• Hand-Carved or Hand-Cut • Sliced **General Adjectives:** • Juicy • Sizzling • Succulent • Mouth-Watering • Savory • Old-Fashioned • Home-Style • House-Made • Classic • Moist • Tender • Fork-Tender • Shredded • Hand-Selected • Bistro-Style • Lean • Bone-In

Boosting Profits

- Enhance your options by offering a special of the day or limited time offer (LTO) to give you some flexibility to utilize over purchases or take advantage of purchase specials for cuts & selections not on your standard menu.
- Use gross profit (menu price – food cost) as a guideline to sell more of your profitable dishes.
- Leverage the power of value cuts like the Flat Iron Steak, Denver Steak and Ranch Steak to make popular beef dishes the most profitable.
- Create a "Signature Dish" symbol for your most profitable and popular dishes
- Offer two portion sizes of your popular beef entrees to fit a variety of customer appetites & price points
- Menu "Beef as an Ingredient." Adding beef to salads, pastas and appetizers provides beef options for smaller appetites through the menu sections
- Leverage umami appeal.
    - Add to steak's cravability by layering on ingredients that bring out meaty flavors: blue cheese, Parmesan, mushrooms and soy sauce are just a few.

- Use rubs, marinades and compound butters to add flavor and menu-appeal for a very low cost
- Finish strong with garnishes that add flavor, texture and color to create drama
    - Crispy fried onion straws, grated horseradish or wasabi, drizzle of truffle or infused oils

Beef's Profit Power
Research shows how beef drives profits and builds traffic. Results from a January 2012 patron study to determine perceptions of beef at restaurants show how beef attracts patrons, provides satisfying and memorable meals and that your customers prefer beef when dining out.

- 89% of patrons ate a beef meal at a full service restaurant rather than a chicken meal (81%) in the past 12 months.
- 69% of restaurant patrons picture beef as the centerpiece of a great meal vs. chicken and pork.
- 69% of patrons claim beef vs. chicken and pork, makes their mouth water the most.
- 63% of patrons prefer a strip steak after a long week of work, vs. a chicken breast or pork chops.

Beef Classics
Clearly beef's popularity in America is alive and well. Away from home, more servings of beef than poultry are being ordered at restaurants. Other research reveals that consumers are seeking a wider selection of beef products and more innovative flavor options.

As food experts, you are uniquely qualified to make beef even more enjoyable for consumers by creating great-tasting beef applications. You'll soon discover how you can "create the crave" that satisfies consumers' desire for great-tasting, innovative beef dishes. The beef classics listed below will help get you started.

Appetizers/Small Plates
- Sliders
- Steak Skewers/Satay
- Beef Poutine

Soups/Stews
- Beef Chili
- Beef and Barley Vegetable Soup
- Beef Pho
- Beef Ramen

Salads
- Spinach, Steak and Blue Cheese Salad
- Beef Taco Salad
- Steak Caesar Salad
- Beef and Asian Noodle Bowl

- Steak Sorriso

Sandwiches & Other Handhelds
- French Dip
- Reuben
- Chicago-Style Italian Beef
- Fajitas
- Thai Lettuce Wrap
- Braised Beef Banh Mi
- Philly Cheese Steak

Burgers
- Bacon Cheeseburger
- Mushroom Swiss Burger
- Patty Melt
- Western Burger
- Hawaiian Burger
- California Burger

Ribs
- BBQ Back Ribs
- Braised Short Ribs
- Braised Country Style Ribs (for pulled beef entrees)
- Korean Beef Ribs

Roasts & Brisket
- Chateaubriand
- "Prime" Rib or Standing Rib Roast with Yorkshire Pudding
- Standing Rib Roast
- Yankee Pot Roast
- BBQ Brisket
- Carved Beef Roast
- BBQ Tri-Tip

Steaks
- Sirloin Steak
- Tenderloin Steak (Filet Mignon)
- Ribeye Steak
- Strip Steak
- Steak Diane
- Carne Asada
- Steak Frites
- Surf & Turf
- Steak & Eggs

Kabobs & Skewers
- Beef En Brochette

- Beef Shish Kabobs
- Beef Satay

Ground Beef
- Meatloaf
- Meatballs
- Lasagna
- Shepherd's Pie

More Beef Classics
- Hash
- Italian Braciola
- Teriyaki Beef
- Shabu Shabu
- Beef Tournedos

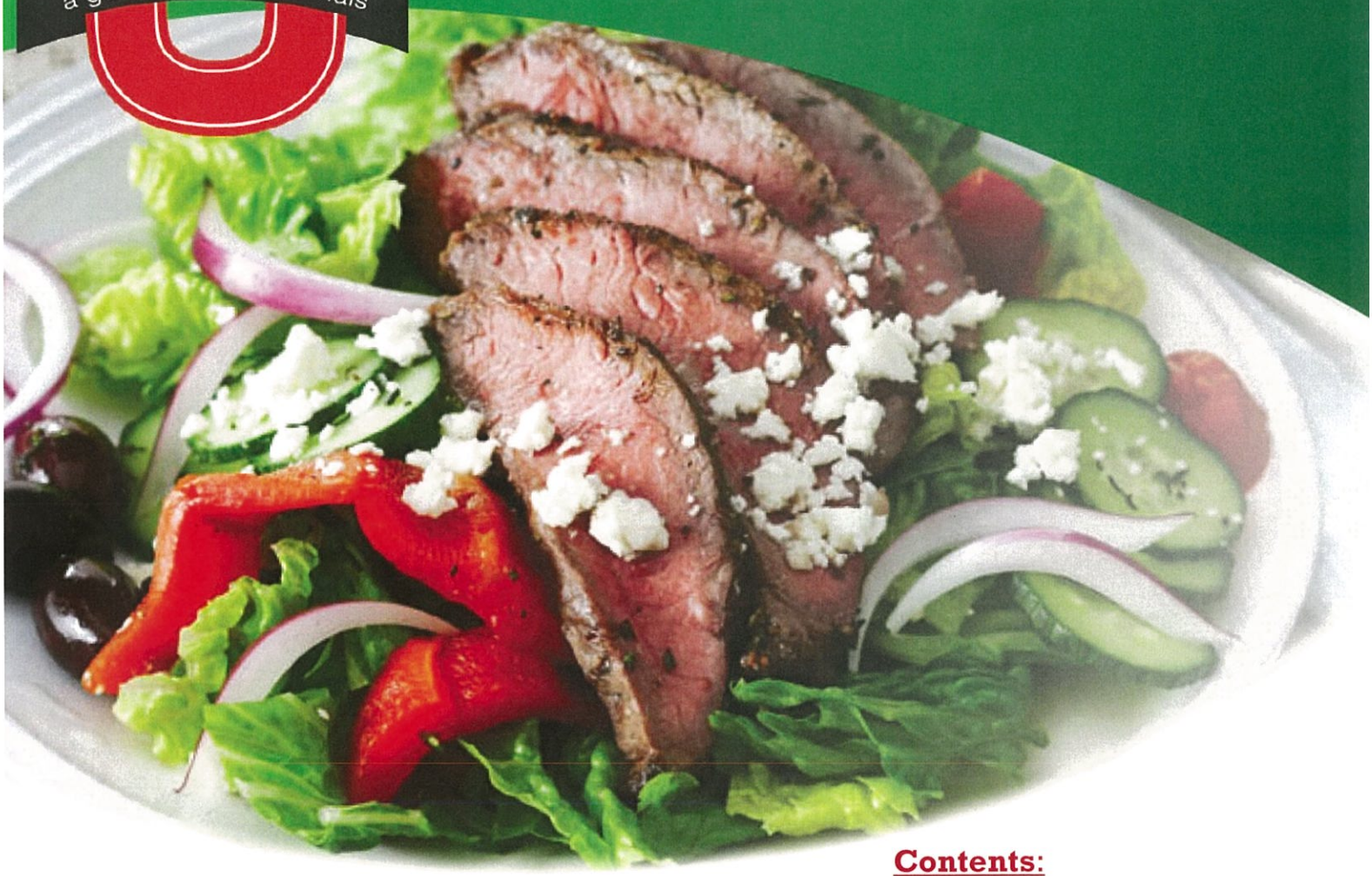
BEEFlexible: Global Flavors
Beef is a perfect match for a wide variety of global ingredients, creating endless menuing opportunities for operators. Beef can fit within all cuisines - from a classic Mediterranean pasta to an Asian salad or a Latin street snack. Recipes and idea starters from the Beef Checkoff, developed by the leading culinary experts, feature hundreds of globally-inspired ideas and recipes that capitalize on the latest trends, and can be applied across all day parts, foodservice segments and menu type. Operators can leverage beef's versatility and profit power in innovative culinary applications to appeal to consumers' demand for global, unique flavors.

Resources:
For more information about Beef Menuing, visit:

- Beef Recipes and Menu Inspirations
  http://www.BeefFoodservice.com/recipesearch.aspx
- Beef's Profit Power
  http://www.BeefFoodservice.com/Beefsprofitpower.aspx
- Patron Insights
  http://www.BeefFoodservice.com/patroninsights.aspx
- Menu Inspiration Brochures
  http://www.BeefFoodservice.com/menuinspirationbrochures.aspx
- Foodservice Market and Menu Intelligence
  http://www.beeffoodservice.com/marketintelligence.aspx
- Beef Culinary Innovation Center
  http://www.CulinaryInnovationCenter.com/

Nutrition

BEEF U
a guide for professionals



Contents:

BEEF®
Funded by the Beef Checkoff.

Nutrition Overview

About 50 different nutrients are essential to health, and no single food or food group contains all of these nutrients. Beef is a natural source of 10 essential nutrients. Combining a balanced and varied diet with daily physical activity is the best way to maintain a healthy lifestyle. Yet many Americans do not consume the recommended daily servings from the five nutrient-bearing food groups, falling particularly short in the categories of fruits and dairy. Although on average Americans consume just slightly less than the minimum number of recommended servings from the meat group, many sub-populations, including women and children, fall far short. Failing to eat the minimum recommended number of servings from each food group can place consumers at risk for nutritional inadequacies.

The 2010 Dietary Guidelines for Americans and MyPlate encourage people to "go lean with protein" and "get more nutrition from their calories." Today's naturally nutrient-rich lean beef easily fits within this guidance.

As an excellent or good source of 10 essential nutrients, beef improves the nutrient density and quality of the diet. Research has shown that consumption of beef contributed significantly to intake of protein and many key nutrients such as vitamin B_6 and B_{12}, zinc, iron, niacin, phosphorus and potassium without providing significantly to intakes of total fat, saturated fatty acids or sodium in diets of a nationally representative sample of the U.S.

One 3 oz serving of lean beef is an excellent source of six essential nutrients (protein, zinc, vitamin B6 and B12, selenium and niacin) and a good source of four essential nutrients (phosphorus, choline, iron and riboflavin). Recent research demonstrates that the key nutrients in beef may play a positive role in some of today's major health concerns, including obesity, bone health and brain function.

Protein

Scientific research continues to indicate that protein plays a significant role in creating optimal health. High-quality protein provides the right amounts of essential amino acids, or "building blocks," the body needs to grow, build and maintain muscle and function properly. It's essential to metabolism regulation and can be used as a source of energy. In addition, protein can provide protection from disease by enhancing the body's immune response. Beef is one of the top food sources of protein in the American diet, and is considered a complete protein because it contains all nine of the essential amino acids needed by the human body.

Many Americans could benefit from a moderate to higher protein diet because of its positive role in weight management, healthy aging and disease prevention. On average, Americans consume 5.1 oz of protein foods each day (from meat, poultry, egg, fish/seafood, nuts, seeds and soy products). The Dietary Guidelines recommend at least 5.5 oz of protein foods daily. Therefore, Americans are consuming protein foods within the Dietary Guidelines recommendations. Americans consume 1.7 oz of beef daily, on average.

A 3-oz. serving of lean beef offers the most amount of protein in the fewest amount of calories when compared to plant proteins such as peanut butter, black beans and tofu.

When it comes to choosing protein, it's important to realize that proteins are not created equal. Animal proteins, like lean beef and pork, skinless poultry, low fat dairy products and eggs, are complete high-quality proteins that contain all the essential amino acids the body needs to build and maintain muscle mass.

Lean beef provides an excellent source of protein in a caloric package where vegetable sources of protein just can't compare. A satisfying 3-oz serving of lean beef is about 150 calories on average. Often it takes 1½ to 2 times more calories to get the same amount of protein from beans, nuts and grains compared to lean meat.

- You would have to eat six tablespoons (564 calories, 48 g total fat) of peanut butter to get the same amount of protein found in a 3-oz serving of lean beef (about 150 calories).
- A person would need to consume 1½ to 2 times the calories provided in 3 oz of beef to get an equivalent amount of protein in lentils or a plant-based meat alternative such as a veggie burger.
- A 3-oz serving of lean beef provides about the same amount of protein as 1½ cups of cooked black beans—but in less than half the calories.

Zinc

Zinc plays a critical role in growth and development, maintenance of the body's immune system and resistance to infection, wound healing, taste acuity and appetite control. It's essential for reproductive health in both men and women. Beef is an excellent source of zinc in the American diet. A 3-oz serving of cooked lean beef provides 33% of the zinc most people need in a day. In addition to containing a high level of absorbable zinc, meat also increases the absorption of zinc from other foods that are eaten at the same meal. You'd have to consume fourteen 3-oz servings of white tuna or nearly seven 3-oz chicken breasts to get the same amount of zinc found in one 3-oz serving of beef.

Iron

Iron is an essential nutrient that transports oxygen to body tissues. It's important for cognitive development, intellectual performance, a healthy pregnancy, immune defense and work performance. Beef is a good source of iron in the American diet. The type of iron found in meat (heme) is two to three times better absorbed than non-heme iron found in plant foods and, when consumed at the same meal, meat has been shown to increase the absorption of plant iron two- to four-fold—an effect known as "the meat factor." You'd have to eat three cups of raw spinach, nearly nine 3 oz servings of Atlantic farmed salmon, or nearly three 3-oz chicken breasts to get the same amount of iron found in one 3-oz serving of beef. Pairing beef with other iron-rich foods is a great way to create a healthy menu option—think Sirloin spinach salad.

B Vitamins

B vitamins help the body use energy and regulate many of the chemical reactions necessary to promote growth and maintain health. The body needs B vitamins to "unleash" the energy in food. The family of B-vitamins includes thiamin, riboflavin, niacin, vitamin B6, folate, vitamin B12, pantothenic acid and biotin. In the American diet, beef is an excellent source of niacin, vitamin B6 and B12 and a good source of riboflavin. Calorie for calorie, beef is one of the best sources of these essential B vitamins.

Selenium

Selenium, a well-known antioxidant, enhances the body's ability to fight infections. Beef is an excellent source of selenium in the American diet.

Phosphorus

Important in the formation of bones and teeth, phosphorous also plays an important role in the body's utilization of carbohydrates and fats, as well as the synthesis of protein for growth, and the maintenance and repair of cells and tissues. Beef is a good source of phosphorus in the American diet.

Good Fat vs. Bad Fat

- Many people may not realize that half of the fatty acids in beef are monounsaturated, the same kind of fat found in olive oil. Most experts believe monounsaturated fats can lower blood cholesterol and reduce the risk of heart disease. A 3-oz serving of cooked beef typically contains more monounsaturated fatty acids than saturated fatty acids. About one-third of the saturated fat in beef is stearic acid, which has been shown to have a neutral effect on blood cholesterol levels in humans.
- Beef contributes 10% or less of saturated fat and total fat in the American diet.

Beef and Heart Health

Contrary to conventional wisdom, recent research shows that lean beef fits as well as chicken or fish in a heart healthy diet. A recent study called BOLD (Beef in an Optimal Lean Diet) demonstrated that when adding lean beef to the most recommended heart-healthy diet, it lowered heart disease risk by reducing levels of total and LDL "bad" cholesterol. Including lean beef daily as part of a heart-healthy diet and lifestyle improved cholesterol levels.

Fat & Cholesterol: The Whole Story

Fat is an essential nutrient. It enables the absorption of fat-soluble vitamins and the formation of hormones, and it can be used as an energy source. The key, of course, is to consume it in moderation. Beef can be a part of a heart-healthy diet—and a part of your menu options, especially when you serve leaner cuts. Half of the fatty acids in beef are monounsaturated, the same type of fatty acids found in olive oil. In addition, approximately ⅓ of the saturated fat in beef is stearic acid. Studies have shown that stearic acid has a neutral effect on blood cholesterol levels.

Lean beef fits easily into low-fat diets designed to decrease blood cholesterol levels. Research shows that Americans can eat 6 oz of lean red meat five or more days a week as part of a cholesterol-lowering diet.

Lean Beef

Many of America's favorite cuts are lean; there are more than 29 cuts of beef that meet government guidelines for lean and have less than 10 grams of total fat, 4.5 grams or less of saturated fat and less than 95 milligrams of cholesterol per serving.

These lean cuts of beef have an average of 156 calories per 3-oz serving and, only one more gram of saturated fat than a skinless chicken breast, per 3-oz serving. Many popular beef cuts

meet government guidelines for lean, including favorites such as Sirloin, Flank steak, Tenderloin, T-Bone Steak and 95% lean Ground Beef.

Calorie for calorie, beef is one of nature's best-tasting multivitamins. A 3-oz serving of lean beef contributes less than 10% of calories to a 2,000-calorie diet, yet it supplies more than 10% of the Daily Value (DV) for ten essential nutrients. You'd have to consume 18 oz of cooked chicken breast to get the same amount of zinc as in 3 oz of cooked beef, and you'd have to consume at least 7½ oz of cooked chicken breast to get the same amount of iron as in 3 oz of cooked beef.

A 3-oz serving of lean beef is an excellent source of:

- Protein (49% of the DV)
- Selenium (41% of the DV)
- Vitamin B12 (44% of the DV)
- Zinc (36% of the DV)
- Niacin (26% of the DV)
- Vitamin B6 (22% of the DV)

A 3-oz serving of lean beef is a good source of:

- Phosphorus (19% of the DV)
- Choline (16% of the Adequate Intake)
- Iron (12% of the DV)
- Riboflavin (10% of the DV)

Lean beef is a nutrient powerhouse compared to the same size (3-oz) serving of a skinless, boneless chicken breast—lean beef has 9 times more vitamin B12, 6 times more zinc and 2½ times more iron (and lots more flavor!). In addition, lean beef is an excellent or good source of ten essential nutrients. With so many beef cuts being lean, it's easy to build great-tasting and healthful meals that include America's favorite protein—beef —with vegetables, fruits and whole grains.

Lean Beef Cuts

Today's beef is leaner than ever. According to the USDA, one 5-to-7-oz or two 2-to-3-oz cooked, trimmed servings of lean meat or other protein sources are recommended daily. To help visualize serving size, bear in mind that a 3 oz cooked, trimmed portion of beef is about the size of a deck of cards. After cooking, 4 oz of boneless raw beef will weigh about 3 oz.

Many of the most popular beef cuts meet the USDA guidelines for lean, including:

- Bottom Round Steak
- Brisket Flat Half
- Eye of Round Steak
- Eye of Round Roast
- Flank Steak
- Petite Tender
- Strip Steak
- Tenderloin Steak
- Tenderloin Roast
- T-Bone Steak
- Top Round Steak
- Top Round Roast
- Top Sirloin Steak
- Tri-Tip

Nutritional data for these cuts, and others can be found through the U.S. Department of Agriculture (USDA) Nutrient Database for Standard Reference.

Resources
For more information on nutrition, please visit:

- BeefRetail.org
  - Nutrition Labeler Tool: www.BeefRetail.org/NutritionLabeler/
  - American Heart Association Heart-Check Mark Food Certification Program: www.BeefRetail.org/AmericanHeartAssociationCertificationProgram.aspx
  - Lean Beef Sales Data www.BeefRetail.org/SalesData.aspx
- BeefNutrition.org
- FactsAboutBeef.com
- BeefItsWhatsForDinner.com

BEEF U

a guide for professionals

Food Safety

Contents:

BEEF®

Funded by
the Beef Checkoff.

U.S. Food Supply

The United States food supply is more varied and abundant than anywhere else in the world. Due to this diversity, Americans are able to enjoy the culinary and cultural variety that the global market has to offer. The U.S. produces 20 percent of the world's beef with 7 percent of the world's cattle according to the USDA. Half as many farmers and ranchers today feed a population that has more than doubled (6.8 billion people) since 1960.

Due in part to the investment and commitment to beef safety of cattlemen and others, significant reductions in foodborne illness have been realized, including reducing *E. coli* O157:H7 incidence to help meet the "Healthy People 2010" goal of no more than one case per 100,000 people set by the Centers for Disease Control and Prevention (CDC).

Cattlemen continually implement the very best production practices based on sound science and extensive expertise. The beef industry and government also continue to invest in safety research that advances our understanding of new and current food safety challenges. Additionally, industry leaders continue to cooperatively identify and implement safety solutions.

Food Safety Challenges

Bacteria are found everywhere: in soil, plants, animals and the human body. While most bacteria are harmless, some can cause foodborne illness. Minimize the risk of foodborne illness by practicing safe food handling and storage.

E. coli O157:H7 is one of hundreds of strains of the bacterium *Escherichia coli.* Most strains are harmless and live in the intestines of healthy humans and animals. O157 and six other strains are regulated because they produce a powerful toxin and can cause severe illness in humans. Food must be cooked sufficiently to kill bacteria such as *E. coli.*

Salmonella is a group of bacteria found in the digestive tract of animals, including poultry and cattle. It can cause illness when ingested in raw or undercooked eggs, poultry, meats and other foods.

Advancements to improve the safety of U.S. beef products have occurred because all sectors of the beef industry have worked together to reduce pathogens. *E. coli* O157:H7 was first recognized as a disease-causing organism in 1982. While significant progress has been made in reducing the number of people impacted by this pathogen, non-O157 Shiga toxin-producing *E. coli* (STEC) have now been noted as having the potential to impact public health. *Salmonella* has also been associated with human illness and each will be continually monitored and researched to establish prevalence, incidence and control. Despite multiple interventions and new technologies applied throughout the beef chain, pathogens are still found on a limited basis in beef products.

Beyond bacterial contamination that must be prevented, contamination can also include physical and chemical hazards that should be avoided. Contamination can be minimized or avoided altogether by following appropriate sanitation procedures, good manufacturing practices, and good employee hygiene practices.

Beef Industry Safety Commitment

The U.S. beef supply is the safest in the world as beef safety is a top priority for America's beef producers. The industry has made significant strides in better understanding foodborne illness as it relates to beef products and beef production. Since 1993, the beef industry has invested more than $30 million in beef safety research, outreach and education. These programs include annual safety-focused workshops as well as print and online resources. The beef industry spends more than $550 million annually on improving beef safety by implementing and maintaining intervention equipment and verifying they are working properly.

Since its inception in 1997, the Beef Industry Food Safety Council (BIFSCo) has been committed to developing industry-wide, science-based strategies to solve the problems of foodborne pathogens in beef. This is done by identifying and prioritizing research needs from farm to table; developing programs to help industry segments operate in today's business environment; speaking with one voice in seeking regulatory and legislative solutions through education; developing and implementing industry information programs to assist in the transfer of technology into the market place and providing pertinent, accurate and reliable information to consumers.

Since 2003, the Beef Industry Safety Summit has been the hallmark of the U.S. cattle industry's commitment to providing the most wholesome product possible. Every Beef Industry Safety Summit has delivered newly released research information, access to safety experts and time for dialogue and discussion with representatives from across the industry. The Beef Industry Safety Summit has become the premiere meeting to discuss current and emerging safety challenges. For more information about the Summit, visit www.BIFSCo.org.

The government also plays a critical role in providing a safe food supply. Every federally inspected meat processing facility undergoes a thorough USDA inspection, which includes review of their Hazard Analysis and Critical Control Points (HACCP) system—the foundation for safety intervention methods and process controls. All federally-inspected processing facilities utilize Hazard Analysis Critical Control Point plans to implement procedures to reduce the likelihood of contamination before it even occurs. Inspection personnel are present in processing plants to ensure the products produced are wholesome. FSIS conducts product sampling for microbial contamination and additional sampling is conducted by the plants, to go above and beyond the requirements to ensure safety of the products they produce and provide for consumers.

The safety of beef products and the protection of public health are primary concerns for the beef industry. The industry has completed and is currently conducting new research identifying new and improved technologies and exploring all opportunities to strengthen the safety of today's beef supply. Everyone plays a key role in providing the safest beef products for consumers.

Food Safety Responsibility

Food safety is everyone's responsibility from pasture to plate. Cattle farmers and ranchers are committed to providing the safest beef possible. Safety starts in the pasture and continues throughout the life cycle. Process controls, interventions both pre- and post-harvest and

inspections during processing are employed to ensure the safety of the product delivered to you.

Preventing illness starts with keeping foodborne pathogens out of the supply chain. The beef community does this by placing multiple safeguards along the way. The goal of the beef community is to eliminate foodborne pathogens from the beef supply chain by:

- Placing multiple safeguards along the way
- Minimizing the possibility that these pathogens survive the journey

There are many procedures in place to help protect people from foodborne pathogens. Many of these safeguards are focused on setting standards at meat processing plants.

Every federally-inspected meat processing facility undergoes a thorough USDA inspection, which includes review of their Hazard Analysis and Critical Control Point (HACCP) system, which is the foundation for safety intervention methods and process controls.

In addition to the sampling and testing protocols that individual companies have in place, the U.S. Department of Agriculture (USDA) Food Safety Inspection Service (FSIS) also collects random samples of product and submits them to a laboratory for analysis. If a product tests positive for a regulated foodborne pathogen, it is important to notify the public and recall those products in order to prevent future illness.

Your Role in Food Safety

Most cases of foodborne illness reported in the U.S. every year can be traced to poor handling, storage or preparation at home or in foodservice establishments. You play a key role in food safety and in preventing foodborne illness for your customers. The following best practices are recommended to keep food safe:

- **Ensure all staff are trained in food safety best practices**
- **Clean**
    - Take a moment and think about all of the surfaces, utensils, people and food that you touch when preparing a meal. Bacteria can inadvertently spread throughout your kitchen on unwashed hands, cutting boards, kitchen utensils, countertops and sponges. This is known as cross-contamination, and that's why it's important to thoroughly clean anything that has been in contact with raw meat, eggs or poultry with hot, soapy water.
    - Wash hands with warm soapy water for at least 20 seconds before preparing food and after handling raw meat.
    - Use separate cutting boards, platters, trays and utensils for cooked and raw foods, and wash work surfaces and utensils thoroughly after handling raw meats to prevent cross-contamination.
    - Purchase all foods, including beef, from reputable suppliers.

- **Storage & Chilling**
    - Use a refrigerator and freezer thermometer to ensure that your refrigerator is at or below 40°F, and your freezer is at or below 0°F.

- Cool from 135°F or higher to 70°F within two hours.
- Cool to 41°F or lower in next four hours
- Utilize an approved method for cooling:
  - Reduce the container size
  - Ice-water bath
  - Ice paddle
  - Blast chiller or tumble chiller
- Space items in your refrigerator and freezer so air can freely circulate.
- Use refrigerated beef steaks, roasts and deli meats within three to five days of purchase. All fresh poultry, ground meat and fish should be used within one to two days of purchase.
- Store raw meat, poultry and fish in a container or on a dish that will prevent juices from dripping onto other foods.
- Follow the "use by" information on package labels. If you cannot remember when a food item was placed in the refrigerator, throw it out.
- If fresh meat will not be used within the allowable time, ensure the meat is well wrapped and place it in your freezer on the bottom shelf.
- Label and date your frozen foods, and follow the "first in, first out" rule.

- **Separate & Prepare**
  - Wash your hands with hot, soapy water for at least 20 seconds before preparing food, as well as before and after handling raw meat.
  - Keep raw meat, poultry and fish and their juices from coming into contact with other foods during preparation. Wash all utensils and surfaces with hot, soapy water after contact with raw meat.
    Never chop fresh vegetables or salad ingredients on a cutting board that was used for raw meat without properly cleaning it first. If possible, designate a separate cutting board for preparation of raw meat, poultry and fish.
  - Thaw foods only in the refrigerator or microwave oven; never leave out at room temperature. Foods thawed in the microwave must be cooked immediately, not refrigerated.
  - Marinate in the refrigerator, not on the kitchen counter. Discard or boil thoroughly any leftover marinade that was in contact with the raw meat.
  - Clean produce well under cold, running water, and scrub thoroughly with a clean brush when possible.

- **Cook/Serve**
  - Use an ovenproof or instant-read meat thermometer to prevent overcooking or undercooking.
  - Place the thermometer in the thickest portion of the meat, not touching bone, fat or the bottom of the pan.
  - For ground beef patties, insert thermometer sideways into the center of the patty.
  - Ground beef should be cooked to an internal temperature of 160° F. Other cuts of beef, like steaks and roasts should be cooked to a minimum temperature of 145° F.
  - Always place cooked food in a clean dish for serving, and use clean utensils. Never use the same plate that held raw meat, poultry or fish to serve the cooked meat.

- Do not allow any cooked food to sit out at room temperature more than two hours.
- When serving food buffet style, keep cold foods on ice at a temperature below 40°F, and keep hot foods above 140°F. Do not mix fresh food with food that has been sitting out.

- **Leftovers**
  - Refrigerate cooked foods no later than two hours after cooking. Do not allow foods to cool at room temperature.
  - Divide large amounts of leftovers into small portions and place in shallow containers for quick chilling.
  - Freeze or discard leftovers that won't be used within a few days.
  - Cover and reheat leftovers to 165°F throughout. Stir foods while you reheat them to ensure that all the food reaches the appropriate temperature.
  - When in doubt, throw it out.

Resources

For more information on beef safety, please visit:

- Beef Industry Food Safety Council
  www.bifsco.org
- Beef Safety Research
  http://www.beefresearch.org/beefsafetyresearch.aspx
- Beef Food Safety resources
  http://www.BeefFoodservice.com
- ServSafe
  http://www.servsafe.com/home
- Retail Food Safety Resources
  http://www.BeefRetail.org
- USDA Food Safety and Inspection Service
  http://www.fsis.usda.gov/wps/portal/fsis/topics/food-safety-education

Customer Service

BEEF U
a guide for professionals

Contents:

BEEF®

Funded by
the Beef Checkoff.

Differentiation -- Why It Is So Important

When competing for shoppers dollars, differentiation is key.

Differentiation is the act of designing a set of meaningful differences to your customers that distinguish (and elevate) your company's offering from competitor's offerings.

Ways to differentiate include:

- Your products (best quality, variety, innovative etc.)
- Your customer service
- Excellent staff/personnel
- Channels of operation/location
- Price – but only one company can be the real low price provider

Why Focus on Customer Service?

Unfortunately, dissatisfied customers do more harm than satisfied customers do good.

- 9/10 unhappy customers will not revisit a retail location where they've had a poor experience
- Dissatisfied customers tell an average of 9 others about their negative experiences
- More than 50% of American shoppers say that a negative shopping experience of a friend will prevent them from visiting a store all together

Customer Retention

The Stats:

- It costs between 5 and 6 times more to attract new customers than to keep current ones
- A 2% increase in customer retention has the same effect on profits as cutting costs by 10%
- A 5% reduction in customer defection rate can mean a 25%-125% jump in profitability
- The average company loses 10% of its customers each year

The Good News:

- 68% of shoppers stopped shopping at a given store because they felt the staff "didn't care."
- At any given moment, one of these shoppers who've had a bad experience at another store might be visiting your store for the first time.
- This is your opportunity to impress them and retain a new customer!

How to Keep Customers:

- Provide outstanding customer service:
  - Know your customer base better than anyone
  - Be friendly and helpful
  - Be knowledgeable about products
  - Be proactive with new consumer trends
  - Listen and respond to customers' needs
  - Find ways to better serve your customers through innovation

Customer Service Do's and Don'ts

- DO
  - Focus on the customer
  - Empower employees
  - Emphasize customer communication
  - Create a fun shopping experience
  - Know how to cater to different customer types
- DON'T
  - Focus solely on productivity
  - Forget to empower employees
  - Make shopping a chore
  - Treat all customers as if they have the same needs

Customer Types

- *Focused customers* are not interested in interaction; want to get in and get out
  - Keep meat case well stocked and be on hand just in case they have a question
- *Puzzled customers* have questions about preparation instructions and want reassurance they're making the right choices
  - Encourage your staff to be courteous and helpful with not only meat case questions but questions on the entire store
- *Angry customers* want to be heard and often want a situation rectified
  - Acknowledge their concerns immediately and handle complaints quickly based on your store's policies
- *Hurried customers* often need help solving "the dinner dilemma"
  - Immediately ask how you can help; have quick and easy dinner solutions to offer on hand

Keys to a Posiitve Shopping Experience

Strong customer service drives loyalty.

According to a study in 2011 with over 6,000 consumers, recommendations to enhance customer service included:

- Friendly, knowledgeable staff
- Staff recommendations on products
- Quality products

It's important to note that almost 1/3 of positive customer experiences related to staff support.

Source: Experience Radar 2011: Retail Insights. SN Nov 21, 2011.

Reaching out to Your Customer

- Remember you're the beef expert. Your white coat and name tag signal expertise.
- Watch what a customer is looking at in the case.
- Offer suggested alternatives for size/specials.
- Inquire about menu plans and offer suggestions.
- Build rapport and a sense of trust with customer.
- Hand the customer a recipe suggestion rather than expect the customer to find it on their own.
- Use demonstrations/sampling events.

Your Role in Customer Service

- Explain
    - Difference between cuts of meat
    - Benefits of certain cuts for certain meals
- Introduce
    - New beef cuts
    - Newly introduced prepared beef products
- Demonstrate
    - Ease of preparation
    - Delicious taste
- Provide
    - Recipes
    - Preparation and cooking method tips
    - Nutritional information

The Three Customer Service *A's*

- *Attentiveness*
  - Make eye contact
  - Listen to the customers' questions
  - Ask questions to better understand how you can provide a solution
- *Acknowledgement*
  - Restate the customers' concern so you know you understand it
  - If looking at options, explain the benefits of the options
  - Provide solutions based on their answers to your questions
- *Agreement*
  - The customer is always right

What Customers are Really Shopping For

Today's customers are busier than ever. They are purchasing meal solutions instead of shopping for specific cuts beef. What will help them is having answers to "What is for dinner tonight?" at their fingertips. You can offer cooking demos and recipes and give reassurance about cooking beef with a knowledgeable staff. Implementing Easy Fresh Cooking labels on your beef packages can provide shoppers with the quick and easy recipes they're seeking. BeefItsWhatsforDinner.com is a great resource to provide for your shoppers who want more in-depth cooking tips, recipes, nutrition information and more.

Customer Service Hurdles and Opportunities

- Hurdle: Lack of meat case staff during peak shopping hours
- Opportunity: Ensure that knowledgeable staff are on duty between

- Hurdle: Consumers lack beef knowledge/resources
- Opportunity: Provide dinner solutions by suggesting new cuts and cooking tips

- Hurdle: Customers can't see employees working in the back of the meat department
- Opportunity: Walk the meat case aisle; ask shoppers if they need assistance

Great ideas for improving customer service at the meat case include:

- Have a well-stocked meat case
- Stock an assortment of beef cuts and package sizes
- Ensure the meat case is well organized and properly labeled
- Make sure the meat case is clean
- Provide alternative cuts, and ensure your staff can speak knowledgably about them

Research consumer trends and apply them to your business. These trends can be found through industry publications and associations, newspapers, online and store sales data.

- Pay attention to consumer trends and apply them to your business.
- Let trends influence or shape your company's vision
- Develop a new business concept, an entirely new venture or a new brand
- Add a new product or service, or experience for a certain customer segment
- Speak the language of those consumers already 'living' a trend

Resources

For more information on Customer Service, visit:

- Meat department educational resources
  http://www.BeefRetail.org/Education.aspx

- Better Beef Sales online training
  http://www.BeefRetail.org/BetterBeefSales.aspx

- Consumer information on Beef
  www.BeefItsWhatsForDinner.com

- Dispel myths about Beef
  www.FactsAboutBeef.com

- Retail Beef Blast – monthly e-newsletter for retailers
  www.BeefRetail.org/RetailBeefBlast.aspx

- Online educational videos
  For retailers: www.YouTube.com/BeefRetail
  For consumers: www.YouTube.com/LandOfLeanBeef

Consumer Buying Behavior

BEEF U
a guide for professionals

Contents:

BEEF®
Funded by
the Beef Checkoff.

Consumer Buying Behavior

The aim of marketing is to meet and satisfy customer's needs and wants. Consumer behavior is about how your customers select, buy, and use your products to satisfy their needs and desires.

Influencers of Buying Behavior

Understanding how and why your customers buy is imperative and it is critical to understand the influences on their buying behavior. Buying behavior is influenced by many factors:

- Cultural: culture, social class
- Social: family, life stage, social role, status
- Demographic: age, occupation, income, household size
- Psychological: motivation, beliefs, attitudes
- Individual: knowledge of proteins and cuts, culinary skills, recipe preference, price sensitivity and "nostalgia" for certain meals

It's important to understand how consumers actually make their buying decisions and how and by whom they are influenced. Your customers can be one or more of these when shopping:

- Initiators
- Influencers
- Deciders
- Buyers
- Users

You will need to market to the key influencer for your products as well as the buyer.

Steps in the Buying Process

Consumers engage in a general buying process at retail:

- Problem recognition *(What is for dinner?)*
- Information search *(Find a recipe. Ask family what they want for dinner.)*
- Evaluate alternatives *(Is it fast, fresh, affordable? Will my family enjoy it?)*
- Purchase decision *(I'll buy this!)*
- Post-purchase behavior *(If satisfied, I'll buy it again!)*

It's your job to know what influences your customer at each stage of the buying process because satisfied customers continue to buy!

Why Customers Buy Beef

People crave the taste of beef yet there are other reasons that your consumers purchase beef:

- It is quick and easy (ground beef is very versatile)
- It's the right choice for many occasions
- Beef is a family favorite
- Protein is increasingly seen as critical for good nutrition

Why Customers are Limiting Consumption of Beef

The main reasons consumers are limiting their beef purchases are:

- Health reasons
- Limiting cholesterol or calories
- Other meats seem healthier
- Prefer other meal options
- Too expensive

The good news here is that lean beef cuts minimize many of these concerns and having a lean section in your meat case can give these customers what they are looking for when purchasing beef.

Top Consumer Learnings about Meat

(Source: The Power of Meat: An in Depth Look at Meat Through the Shoppers' Eyes, Food Marketing Institute, 2012)

The role of price keeps on growing. Value plays a dominant role in consumer meat and poultry purchasing decisions with an emphasis on in-store decision making. Consumer money-saving measures are moving away from volume-based discounts. The new trend is spending less by buying less. A retail solution for price-conscious consumers is merchandising family packs and individual portion packs.

60% of consumers "frequently" or "always" implemented these techniques:

- Studying up on grocery circulars
- Diverting to less expensive cuts of meat/poultry
- Looking at price per pound
- Stocking up on meat when it is on sale
- Purchase more private label
- Cooking different meals to stretch meat quantity (pasta, casseroles)

Consumer purchasing shifts at the meat case include the service counter playing a very specific role with specialty purchases available and preparation advice. There is a growing share of "brand switchers." Rather than outright preference for national brands or private brands, more shoppers are open to either.

Thankfully, supermarkets remain the stronghold for meat. Full-service supermarkets feature high shopper retention rates and add shoppers from other channels through meat offering.

It's no secret that meal preparation has changed. Meat and poultry preparation techniques have changed quite a bit over the past five years with a focus on convenience and simplicity. Frying is out, while preparation by oven and slow cooking is in. Also, shopper cooking knowledge is varied. This gives the retailer a vast opportunity to educate and connect with shoppers from marginal cooks to curious gourmets. Shoppers appreciate access to recipes and interest in meat department cooking demos is high. 79% of shoppers say they need more help understanding the nutritional content of meat.

Ways to Grow Beef Sales

Consumers want and will search for better prices, service and quality. Educate your customer on cuts and cooking methods. Provide recipes, cooking demos and classes while showcasing the versatility of beef. Easy fresh cooking labels are great to have on your meat packages. Each label has cooking instructions, safety precautions and at least one recipe.

To grow beef sales, provide shoppers with nutritional information and promote nutrient rich lean beef showing how it compares favorably to chicken. Other ideas for improving beef sales include:

- Offering a better availability of types and cuts
- Calling out lean cuts
- Prominently displaying cuts for growing demographics
- Maintaining cleanliness and better organization
- Providing information and education
- Showcasing better signage/labeling
- Using different/better packaging

Finally, we recommend that you take advantage of the free beef resources *(recipes, photography, beef cut charts)* and information *(cooking tips, nutrition, safety)* from The Beef Checkoff and customize them for your shoppers.

Resources

- Shopper Insights
  www.BeefRetail.org/ShopperInsights.aspx
- Customer handouts and resources
  http://BeefRetail.com/customerhandoutsandresources.aspx
- Meat Department Educational Tools
  www.BeefRetail.org/Education.aspx
- Consumer marketing resources
  http://BeefRetail.org/consumermarketing.aspx
- Beef Market Research
  www.BeefResearch.org
- Beef: It's What's for Dinner
  www.BeefItsWhatsForDinner.com/
- Facts About Beef
  www.FactsAboutBeef.com