

Safe Handling of Beef

SELECTING THE BEST

Fresh is Best: Choose beef that is bright red in color from the fresh meat case. Vacuum packaged beef will be maroon because it has not been exposed to oxygen. Choose beef that is firm to the touch. Look for packages that are cool to the touch, have no wear or punctures, and little or no excess liquid. Always check the “sell-by” date. “Loin” and “rib” are clues that the beef is a more tender cut. “Chuck”, “round” and “flank” indicate a less tender cut. Less tender cuts will require marinating or a slower, moist cooking method.

Purchase raw meats last. Make sure all meats, whether raw, pre-packaged or from the deli, are refrigerated when purchased. Fresh meats may contaminate other grocery items. The best way to prevent this cross-contamination is to always keep fresh meats from other items. Put raw meat packages in a plastic bag so juices won't drip onto other foods. Pack raw meats in an ice chest if it will take you more than an hour to get home, and keep the ice chest in the passenger area of the car during warm weather. Take meats straight home to the refrigerator or freezer.

Product Dating: Product dating, applying “sell by” or “use by” dates, is not required by federal regulations. However, many stores and processors may voluntarily choose to date packages of raw beef. Use or freeze products with a “sell by” date within three to five days of purchase. If the manufacturer has determined a “use by” date, observe it. It's always best to buy a product before its date expires. It's not important if a date expires after freezing beef, because all foods stay safe while properly frozen.

Product Inspection: All beef found in retail stores is either USDA inspected for wholesomeness or inspected by state systems which have standards equal to the federal government. Each animal and its internal organs are inspected for signs of disease. The “Passed and Inspected by USDA” seal ensures that the beef is wholesome and free from disease. Although inspection is mandatory, its grading for quality is voluntary, and a plant pays to have its beef graded.

Product Grading: Quality Grade refers to the eating quality of the meat. Grades are determined by the amount of marbling (flecks of fat within the meat), the texture of the meat and its color and appearance. USDA grades for beef are as follows:
USDA Prime: The lean is highly marbled and usually very tender and juicy; outside fat may be excessive.

USDA Choice: The lean is average in marbling and usually tender and juicy; outside fat is variable.

USDA Select: The lean contains some marbling; tenderness and juiciness can be extremely variable; usually not much outside fat.

USDA Standard: Little or no marbling; tenderness and juiciness extremely variable; very little outside fat.

USDA Commercial, Utility, Cutter and Canner: Generally applied to older animals. This beef is most often used in processed products and is rarely cut for the freezer.

STORAGE

Refrigeration: Keep beef below 40 °F during storage. Store uncooked beef items together, separate from cooked foods. Refrigerate or freeze fresh beef IMMEDIATELY after bringing it home. NEVER leave beef in a hot car or sitting out at room temperature. Packaged whole cuts of fresh beef may be refrigerated in their original wrappings

in the coldest part of the refrigerator for three to five days after purchase, while ground beef can be stored in the refrigerator for one to two days. Keep beef refrigerated until you are ready to cook it. When transporting cooked beef to another dining site, place it in an insulated container or ice chest until ready to eat. Cooked whole cuts of beef are best when refrigerated no longer than two to three days. Cooked ground beef is best when refrigerated no longer than one to two days.

Freezing: Freeze whole cuts of fresh beef if you do not plan to cook it within three to five days after purchase. Freeze ground beef if you do not plan to cook it within one to two days after purchase. Wrap beef parts separately in aluminum foil or freezer paper before freezing, and label for ease in selecting just the right number of parts to thaw for a single meal. Be sure to press the air out of the package before freezing.

You may also freeze beef in its original wrapping. Dropping the original package into a freezer bag will further reduce the possibility of freezer burn. Cooked parts may be frozen in the same way as fresh, unless made with a sauce or gravy. Pack meats in a sauce or gravy in a rigid container with a tight-fitting lid.

PREPARATION

Cleanliness: Always wash hands thoroughly with hot soapy water before preparing foods and after handling raw beef. Don't let raw meat or juices touch ready-to-go foods, either in the refrigerator or during preparation. Don't put cooked foods on the same plate that held raw beef. Always wash utensils that have touched raw meat with hot, soapy water before using them for cooked meats. Wash counters, cutting boards and other surfaces raw meats have touched. These surfaces may be sanitized by cleaning with a solution of 1 teaspoon chlorine bleach per quart of water.

Thawing: Thaw uncooked beef in the refrigerator or in cold water. NEVER thaw beef at room temperature. Thawing by refrigeration requires planning ahead and most likely allowing a 24-hour thawing period. After defrosting raw beef by this method, it will be safe in the refrigerator for up to five days before cooking. During this time, if you decide not to use the beef, you can safely refreeze it without cooking it first.

To thaw beef in cold water, leave the beef in its original wrapping or place it in a watertight plastic bag. Change the water every 30 minutes.

For quick thawing of uncooked or cooked beef, use the microwave, but plan on cooking the meat immediately after thawing because some areas of the food may become warm and begin to cook during microwaving. Thawing time will vary according to whether you're thawing a whole roast or cuts and the number of parts frozen together. Use the DEFROST or MEDIUM-LOW setting, according to the manufacturer's directions. Turn the roast and separate parts as they thaw taking care the meat does not begin to cook. Repeat as needed. Foods defrosted by the cold water method or in the microwave should be cooked before refreezing, because they may have been held at temperatures above 40 °F. For a more detailed outline of safe handling and cold storage of beef, refer to Table 1.

Marinating: Marinate food in the refrigerator, not on the counter. Discard the marinade after use because it contains raw juices, which may harbor bacteria. If you want to use the marinade as a dip or sauce, reserve a portion before adding raw food.

Partial Cooking or Browning: Never brown or partially cook beef, then refrigerate and finish cooking later, because any bacteria present would not have been destroyed. It is safe to partially pre-cook or microwave beef IMMEDIATELY before transferring it to a hot grill or oven to finish cooking.

COOKING

Importance of Kitchen Thermometers: One of the critical factors in controlling bacteria in food is controlling temperature. Pathogenic microorganisms grow very slowly at low temperatures multiply rapidly in mid-range temperatures, and are killed at high temperatures. Cook foods thoroughly to prevent foodborne illness.

Using a thermometer is the only reliable way to ensure safety and to determine the "doneness" of beef and most other foods. To be safe, a product must be cooked to an internal temperature high enough to destroy any harmful bacteria that may have been in the food. Many food handlers believe that visible indicators, such as color changes in the food, can be relied on to determine whether foods

have been cooked long enough to ensure bacterial destruction. However, recent research has shown that color and texture indicators are not reliable.

When cooking whole cuts or parts of beef, the thermometer should be inserted into the thickest part of the meat, away from the bone, fat and gristle. The thermometer may be inserted sideways if necessary. When the food being cooked is irregularly shaped, the temperature should be checked in several places. Proper cooking times for beef can be viewed in Table 2.

Whole Muscle Meats : The USDA recommends cooking to a minimum internal temperature of 160 °F for medium cooked whole cuts of fresh beef and 170 °F for well-done cuts.

Ground Beef: Ground beef must be cooked thoroughly to kill harmful bacteria. Unlike whole muscle meat, whose interior meat is sterile, the grinding process exposes the interior meat in ground beef to bacteria, which may be on the surface, in the air, on equipment or on people's hands. To kill these bacteria, food safety experts have one major rule of thumb – cook ground beef to at least 160 °F. This step, while very simple, offers the best protection that consumers can have for serving ground beef products safely.

Microwaving: When microwaving unequally sized pieces of beef, arrange them in a dish or on a rack so thick parts are toward the outside of the dish and thin parts are in the center, and cook on medium-high or medium power. Place a roast in an oven-cooking bag or in a covered pot. Refer to the manufacturer's directions that accompany the microwave oven for suggested cooking times. Remove from microwave and test for doneness in several places with a meat thermometer.

SERVING

Basic Tips: Wash hands with soap and water before serving or eating food. Serve cooked products on clean plates with clean utensils and clean hands. Never put cooked foods on a dish that has held raw products unless the dish is washed with soap and hot water. Hold hot foods above 140 °F and cold foods below 40 °F. Never leave foods, raw or cooked, at room temperature longer than two hours. On a hot day with temperatures at 90 °F or warmer, this decreases to one hour.

LEFTOVERS

Basic Tips: Always use clean utensils and storage containers for safe storage. Divide large amounts of leftovers into small, shallow containers for quick cooling in the refrigerator; avoid placing large pots of gravy in the refrigerator to cool since it will likely take until the next day for this amount of food to cool. To store in the refrigerator, wrap cooked meat in plastic wrap or aluminum foil, or store it in a tightly covered container and use within two to three days. For frozen storage, wrap meat the same way and use within two to three months. If you may have kept the food refrigerated for too long, throw it out. Never taste food that looks or smells strange to see if you can still use it. Reheat all leftovers to 165 °F.

SOURCES:

1. National Cattlemen's Beef Association. *Beef Tips*. <http://www.beefnutrition.org/facts/Default.htm>
2. Tamplin, Mark L., (1994). *Safe Food Storage Times and Temperatures*, Fact Sheet HE 8490. Florida Cooperative Extension Service, University of Florida.
3. US FDA (1996). *A Consumer Guide to Safe Handling and Preparation of Ground Meat and Ground Poultry*.
4. Wegmans. *Beef Cooking Tips and Tricks*. URL <http://www.wegmans.com/kitchen/ingredients/meat/beefch.html>

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TABLE 1. SAFE HANDLING OF BEEF IN COLD STORAGE

| Product | Refrigerator (40 °F) | Freezer (0 °F) |
|--|---|----------------|
| Raw Whole Cuts of Beef | 1. Roasts and Steaks: 3-5 days 2. Chops: 3-4 days 3. Stew Meats: 1-2 days | 6-9 months |
| Raw Livers, Heart, Kidneys, and Other Variety Meats of Beef | 1-2 days | 3-4 months |
| Raw Ground Beef | 1-2 days | 3-4 months |
| Broiled, Fried, or Roasted Meat and Gravies Made with Beef Meat Stock | 2-3 days | 2-3 months |
| Cooked Ground Meat (hamburgers, meat loaf, and dishes with ground meat) | 3-4 days | 2-3 months |
| Meat Pies, Cooked Stews, Casseroles Containing Beef | 2-3 days | 2-3 months |
| Meat Salads Made with Beef | 1 day | 3-4 months |
| Frozen Packaged Beef | 2-3 days | 3-4 months |

TABLE 2. SAFE COOKING OF FRESH BEEF (Oven Temperature Set at Least 325 °F)

| Product | Size | Broil/Grill* | Pan Fry* | Roast* |
|--|---|----------------------|----------------------|--|
| GROUND BEEF: | | | | |
| 1. Patties | 1. ½" thick | 1. 8 minutes | 1. 8 minutes | 1. --- |
| 2. Patties | 2. ¾" thick | 2. 13 minutes | 2. 13 minutes | 2. --- |
| BEEF (STEAKS): | | | | |
| 1. Boneless Sirloin | 1. 1" thick | 1. 21 minutes | 1. 15 minutes | 1. --- |
| 2. Porterhouse | 2. 1" thick | 2. 15 minutes | 2. 14 minutes | 2. --- |
| 3. Ribeye | 3. 1" thick | 3. 15 minutes | 3. 14 minutes | 3. --- |
| 4. Boneless Strip | 4. 1" thick | 4. 17 minutes | 4. 11 minutes | 4. --- |
| 5. Tenderloin | 5. 1 ½" thick | 5. 15 to 17 minutes | 5. 11 minutes | 5. --- |
| 6. Cube (Sirloin and Round) | 6. ½" thick | 6. --- | 6. 10 minutes | 6. --- |
| 7. Eye (Round)** | 7. 1" thick | 7. 11 minutes | 7. 10 minutes | 7. --- |
| 8. Top (Round)** | 8. 1" thick | 8. 18 minutes | 8. --- | 8. --- |
| 9. Flank Steak** | 9. 1 to 1 ½ lbs. | 9. 14 minutes | 9. --- | 9. --- |
| 10. Sirloin Tip | 10. 1" thick | 10. 11 minutes | 10. --- | 10. --- |
| 11. Chuck (Bone-in/Boneless) | 11. 1" thick | 11. --- | 11. --- | 11. --- |
| BEEF (ROASTS): | | | | |
| 1. Top Round | 1. 2 to 4 lbs. 4 to 6 lbs. | 1. --- --- | 1. --- --- | 1. 30 to 35 min./lb. 25 to 30 min./lb. |
| 2. Bottom Round | 2. 2 to 4 lbs. 4 to 6 lbs. | 2. --- --- | 2. --- --- | 2. 30 to 35 min./lb. 25 to 30 min./lb. |
| 3. Sirloin Tip Round | 3. 2 ½ to 4 lbs. 4 to 6 lbs. 8 to 10 lbs. | 3. --- --- --- | 3. --- --- --- | 3. 35 to 40 min./lb. 30 to 35 min./lb. 23 to 25 min./lb. |
| 4. Boneless Beef Shoulder | 4. 2 to 4 lbs. 4 to 6 lbs. | 4. --- --- | 4. --- --- | 4. 30 to 35 min./lb. 25 to 30 min./lb. |
| 5. Eye of Round | 5. 4 to 5 lbs. | 5. --- | 5. --- | 5. 20 to 22 min./lb. |
| *Cooked to medium doneness (160 °F) | | | | |
| **Marinate beef 6 to 8 hours before broiling or grilling to tenderize. | | | | |