



END PRODUCTS



Food Safety and Proper Handling of Beef

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Overview

Americans have consistently consumed around 56 pounds of beef per person annually over the past century. Each year, approximately 33 million cattle undergo inspection by the United States Department of Agriculture's Food Safety and Inspection Service (USDA FSIS), ensuring the safety of the beef supply.

Microorganisms of Concern in Beef

Escherichia coli (*E. coli*)

E. coli naturally resides in the intestines of animals and can contaminate meat during slaughter. The strain *E. coli* O157:H7 is particularly dangerous, producing a powerful toxin that damages the intestinal lining and causes hemorrhagic colitis, a condition marked by bloody diarrhea. Fortunately, this pathogen is easily eliminated through proper cooking. Although *E. coli* O157:H7 is the most commonly recognized, USDA's FSIS currently samples certain beef products for seven different strains of pathogenic *E. coli*.

Salmonella

This bacterium is commonly found in the digestive tracts of livestock, poultry and even household pets. With over 2,000 known serotypes, *Salmonella* is resilient to freezing but is destroyed by heat. Illness occurs when contaminated meat is ingested — not through skin contact. Cross-contamination is a major risk, especially when raw meat or its juices come into contact with ready-to-eat foods such as salads.

Staphylococcus aureus

Often carried by humans in the nose, throat or on the skin, this bacterium can contaminate food through improper handling. It produces a heat-resistant toxin that causes illness. Preventing staph-related foodborne illness requires good hygiene, thorough cooking and proper refrigeration.

Listeria monocytogenes

Although cooking kills *Listeria*, poor sanitation or handling can reintroduce it to cooked products. FSIS enforces a zero-tolerance policy for *Listeria* in ready-to-eat items like deli meats and hot dogs. Always follow label instructions such as "Keep Refrigerated" and observe "Use-By" dates. Consuming ready-to-eat products

contaminated with *Listeria* is particularly dangerous for pregnant women, newborns, older adults and those with compromised immune systems.

Preventing Foodborne Illness

While the U.S. maintains one of the safest food supplies globally, foodborne illness remains a public health concern. You can reduce risk by following these four key practices:

- **Clean:** Wash hands, utensils, and surfaces regularly.
- **Separate:** Avoid cross-contamination between raw and cooked foods.
- **Cook:** Ensure foods reach safe internal temperatures.
- **Chill:** Refrigerate promptly to slow bacterial growth.

Safe Beef Handling Practices

Raw Beef

- Choose beef just before checkout and place it in plastic bags to prevent leaks.
- Refrigerate promptly at 40 F (4.4 C) and use within:
 - Three to five days for whole cuts
 - One to two days for ground beef and organ meats (e.g., liver, kidneys, tongue)
- Freeze at 0 F (-17.7 C) for long-term storage. Beef kept frozen remains safe indefinitely.

For best results, wrap retail packaging with freezer-safe materials like foil or freezer paper to prevent freezer burn, which appears as dry, grayish brown patches. Trim affected areas before or after cooking. Use steaks and roasts within nine to 12 months for optimal quality.

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Cooked and Ready-to-Eat Beef

- Ensure takeout items are hot when picked up.
- Consume within two hours or one hour if the ambient temperature exceeds 90 F (32.2 C).
- Refrigerate leftovers in shallow containers at 40 F (4.4 C) and eat within three to four days, either cold or reheated to 165 F (73.9 C).
- Ready-prepared beef can be frozen. Use within four months for best quality.

Safe Defrosting Methods

Avoid thawing beef at room temperature. Instead, use one of these safe methods:

- **Refrigerator:** Plan ahead. Ground beef and steaks thaw in a day; roasts may take two or more days. Once thawed, beef remains safe for three to five days and can be refrozen if not cooked.
- **Cold water:** Keep beef in airtight packaging or a leak-proof bag. Submerge in cold water, changing the water every 30 minutes. Small cuts thaw in about an hour; larger roasts may take two to three hours.
- **Microwave:** Cook immediately after thawing, as some areas may begin to cook during defrosting. Do not refreeze unless the meat is cooked first.

Frozen beef can be cooked directly in the oven, on the stove or on the grill — just allow about 50% more cooking time. Avoid using a slow cooker for frozen meat.

Safe Cooking Temperatures

Use a food thermometer to ensure beef is cooked safely:

- **Ground beef and organ meats:** Cook to 160 F (71.1 C).
- **Steaks and roasts:** Cook to 145 F (62.8 C) and allow to rest for at least three minutes before serving.

Consumers may choose to cook meat to higher temperatures based on personal preference. Because appliances and grills vary, always verify doneness with a food thermometer.

Freezer Planning for Harvested Beef

When harvesting beef, it's important to plan for adequate freezer space. A 1,400-pound animal typically yields:

- **Hot carcass weight:** About 880 pounds
- **Chilled carcass weight:** About 840 pounds
- **Edible product:** About 570 pounds after deboning and trimming

These numbers vary based on breed, finishing method (grass versus grain) and individual animal characteristics.

Freezer space estimates

- **Quarter beef:** About 4.5 cubic feet (chest freezer) or about 5.5 cubic feet (upright freezer)
- **Half beef:** About 8 cubic feet
- **Whole beef:** About 16 cubic feet

Summary

Food safety and proper handling of beef are essential for preventing foodborne illness and maintaining the quality of the U.S. beef supply, which is carefully monitored through USDA FSIS inspection. Several microorganisms, including *E. coli* O157:H7, *Salmonella*, *Staphylococcus aureus* and *Listeria monocytogenes*, pose risks when beef is improperly cooked, handled or stored, but these hazards can be minimized through good hygiene, preventing cross-contamination, cooking to safe temperatures and prompt refrigeration. Proper handling practices begin at harvest and continue through storage, preparation and reheating. Together, these practices support a safe food supply and help consumers enjoy beef with confidence.

Sources

United States Department of Agriculture's Food Safety and Inspection Service. Beef from Farm to Table. 2025. <https://www.fsis.usda.gov/food-safety/safe-food-handling-and-preparation/meat-catfish/beef-farm-table>

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P3957-A (online) 7/26

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