



Fact Sheet:

Pathogen Control in Ground Beef

Making safe products is the highest priority for the U.S. meat and poultry industry.

Production and Consumption

Ground beef is a staple in the American diet. The average American consumes nearly 28 pounds of ground beef per year, totaling about 7.5 billion pounds of ground beef produced in the U.S. annually. Fresh beef and ground beef are produced by more than 1,000 plants located in all 50 states. It is estimated that about half of this ground beef (3.75 billion pounds) is sold through foodservice outlets, such as fast-food restaurants. The remaining 3.75 billion pounds is sold through supermarkets. A recent study showed that ground beef accounts for about 15 percent of supermarket meat department sales and nearly one-third of supermarket beef sales.

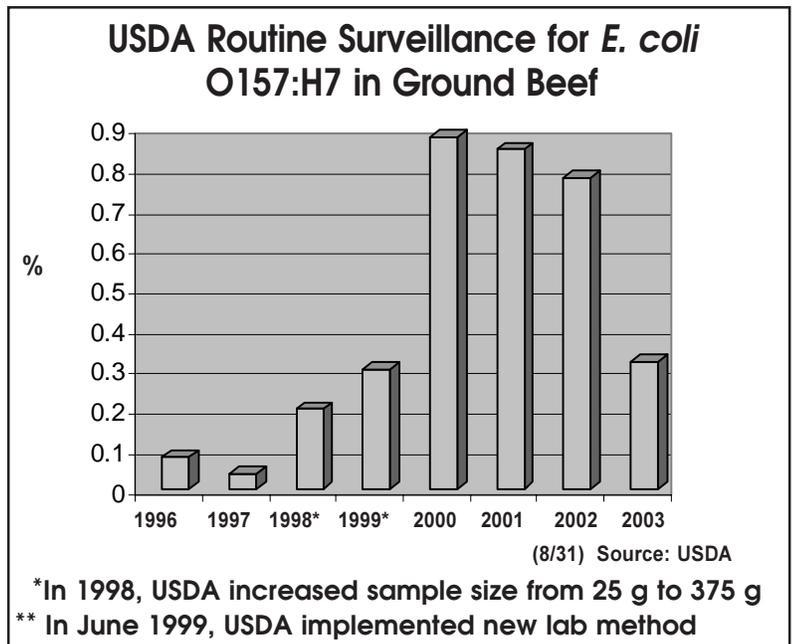
Most ground beef sold in U.S. supermarkets is ground fresh in the store, often from more than one source of fresh beef. Many stores buy "coarse-ground" beef from their suppliers, then re-grind the beef into a finer consistency before packaging it for the meat case. Some stores mix this coarse-ground beef with trimmings from other beef products they cut and package in the store. Some stores grind beef exclusively from fresh beef trimmings produced from cutting and packaging beef products in the store. Thus most ground beef available in U.S. supermarkets consists of beef from several different sources that is processed in machines and handled by employees that may have come in contact with other meat products.

Ground Beef Safety

In addition to companies' own quality and safety monitoring efforts, thousands of USDA inspectors are in beef packing and processing plants to ensure that the products are safe and properly labeled. Fresh beef products are tested in meat plants for generic *E. coli*, for *Salmonella* and for *E. coli* O157:H7.

In addition, all U.S. meat and poultry plants are now required to meet new sanitation requirements and to abide by mandatory safe food production plans, called HACCP plans, to ensure that they are using the best available production and monitoring practices. USDA and state officials also sample ground beef in U.S. supermarkets for *E. coli* O157:H7. Any ground beef product that tests positive for this pathogen must be recalled from the market.

E. coli O157:H7 Incidence



A 2000 AMI Foundation study done in five packing plants showed that while 18 percent of incoming cattle tested positive for *E. coli* O157:H7 on their hides, no carcasses tested positive for the pathogen following careful hide removal and a series of anti-microbial treatments.

The findings support a 1999 AMIF survey of 12 beef packing plants which also showed that *E. coli* O157:H7 was eliminated during processing, despite its presence on hides.

USDA's meat inspection arm, the Food Safety and Inspection Service, routinely samples ground beef for *E. coli* O157:H7. According to FSIS, *E. coli* O157:H7 occurs at a rate of less than one percent and this rate is declining. (See chart above.) While it is rare for *E. coli* O157:H7 to find its way into products, it can occur, making careful handling and thorough cooking critical.

***E. coli* O157:H7 Experts**

Michael Doyle, Ph.D.
Director, Center for Food Safety and Quality Enhancement
University of Georgia
770/228-7284
mdoyle@cfsqe.griffin.peachnet.edu

John Sofos, Ph.D.
Colorado State University
Department of Animal Science
Colorado State University
970/491-7703
jsofos@agsci.colostate.edu

Helpful Links

American Meat Institute Foundation
www.amif.org

American Meat Science Association,
www.meatscience.org

American Society for Microbiology,
www.asmusa.org

Centers for Disease Control and Prevention,
www.cdc.gov

Partnership for Food Safety Education,
www.fightbac.org

Institute of Food Technologists,
www.ift.org

Note that in 1998, FSIS began pulling samples of ground beef that were 15 times larger than previous samples. In June 1999, the agency implemented a new more sensitive test method for *E. coli* O157:H7. These two enhancements to the sampling and testing protocol have provided a greater number of positive samples. This is very likely attributable to better detection methods, not greater prevalence of the pathogen. In fact, since these enhancements to detection methods have been implemented, there has been a decline in the percent of positive samples. In fact, data from 2003 shows over a 50 percent reduction from previous years.

Advice for Consumers

Consumers should follow the safe handling practices detailed on every package of raw meat and poultry and should take special care to cook ground beef products like hamburger and meat loaf to 160 degrees F internal temperature. This is best verified using an instant-read thermometer.

Whole muscle cuts like steaks and roasts are sterile on the inside. Cooking the products destroys any bacteria present on the outside of these cuts. But when meat is ground, any external bacteria that may be present is distributed throughout the ground product. That is why it is so important to ensure that ground products are thoroughly cooked.

The beef industry has been a strong supporter of the Partnership for Food Safety Education, a public-private partnership designed to help consumers prevent foodborne illness. Consumers with food safety questions should visit www.fightbac.org to learn more about safe food handling, or call USDA's Meat and Poultry Hotline at 1-800-535-4555.