



Vet Call

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Evading *E. coli* during summer months

Summer is a time for swimming, picnics and county fairs. It is also a time when the incidence of E. coli O157:H7 infections in cattle and humans increases.

Understanding the infection

The bacteria in the *E. coli* family are the most common bacteria in the intestinal tracts of animals and humans and in most cases are considered harmless or even helpful. However, a few strains of *E. coli* can cause disease and even death.

Of greatest concern today is strain O157:H7. If healthy adults are exposed to O157:H7, the symptoms are usually unnoticeable or mild; however, small children and the elderly are at risk for more severe disease, even death.

Human exposure most often occurs through undercooked ground beef, contaminated vegetables such as alfalfa sprouts and lettuce, unpasteurized milk or fruit juice, contaminated drinking or swimming water, person-to-person contact (most commonly in a day-care setting), and direct contact with infected animals

at petting zoos or fairs. Although other species such as deer also harbor the

organism, the cattle industry has taken responsibility for its portion of the risk posed to human health by *E. coli* O157:H7.

E. coli O157:H7 is found in many beef and dairy herds. Infected cattle tend to shed the bacteria only occasionally. So, in an infected herd, not all the infected animals will be shedding the bacteria on any given day. The number of infected animals appears to be highest among younger animals and during the summer months.

Disease prevention

E. coli O157:H7 contamination from beef is a human health risk if infected material from feces-contaminated hides or feces from



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► Cooking ground beef to 160° F eliminates any danger from pathogenic bacteria such as *E. coli* O157:H7.

the lower intestinal tract contacts a carcass, and/or if meat from the contact point is included into ground beef. In October 1994, the Food Safety and Inspection Service (FSIS), an agency of the U.S. Department of Agriculture (USDA), declared

E. coli O157:H7 to be an adulterant in raw ground beef and established a zero-tolerance

policy. The agency began a sampling program to test for the bacteria strain in federally inspected establishments and in retail stores.

For several years, control strategies to reduce the risk of human disease due to O157:H7 in ground beef have focused on consumer education and packing and processing plant sanitation.

Educational efforts have been undertaken to inform consumers that thoroughly cooking ground beef products to an internal temperature of 160° F will destroy the bacteria and result in a safe product. Because color is not an accurate indication of internal temperature, a meat thermometer is necessary to determine the doneness of ground beef.

In addition, postharvest strategies in packing plants, including steam vacuuming, carcass washes, and high-tech imaging equipment for fecal contamination, have proven to be very effective in reducing the number of contaminated carcasses.

Management that keeps hides clean, such as good pen maintenance, should assist in reducing the risk of fecal contamination of carcasses after harvest.

Protection, from farm to fork

Recently, researchers have looked at methods to decrease the number of cattle harboring the harmful bacteria and to decrease the amount of bacteria in infected individuals. Strategies such as the use of vaccines and certain probiotics during the feedlot phase of production are potentially helpful in efforts to further decrease the risk of O157:H7 to human health. Food safety and cattle industry experts agree that a strategy that includes multiple steps and extends from farm to fork provides the best protection to consumers.

Besides contaminated food products, *E. coli* O157:H7 can be transmitted from animals to humans by direct contact. As fair season approaches, many livestock exhibitions are taking extra precautions by supplying hand-washing stations for people who come into contact with potentially infected animals.

The risks posed by *E. coli* O157:H7 are real and are being aggressively addressed by all segments of the beef industry. By having all segments take responsibility, we can work together to decrease risk to human health and to maintain the reputation of beef as a healthful and nutritious cornerstone of the American diet.

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