**Escherichia coli O157:H7**

Compiled By: Julie A. Albrecht, Ph.D., Associate Professor

**The Organism:** The specific *Escherichia coli* serotype O157:H7 is an aerobic bacteria that produces a Shiga toxin. The bacteria grow slowly at refrigeration temperatures. *E. coli* O157:H7 has been shown to survive in acidic food products such as apple cider and mayonnaise.

Sources of the organism:
- Intestinal tracts of infected animals
- Fecally contaminated water

Associated foods:
- Ground beef
- Unpasteurized milk
- Unpasteurized apple cider
- Lettuce

Microorganism Characteristics: Gram negative toxin forming aerobic bacteria

Growth conditions:
- Temperature range: 4-45°C (39-113°F); can survive refrigeration and freezing
- Optimum Temperature: 37°C (90°F)
- pH range: can survive at pH 3.6
- Lowest reported A_w for growth: .90
- Survives fermentation, drying and storage (3.5% NaCl & 69 ppm Sodium Nitrite)

**The Disease:** Hemorrhagic colitis is the name of the disease caused by *E. coli* O157:H7. The elderly and children are more susceptible to this disease. A possible complication is hemolytic uremic syndrome (HUS), a urinary tract infection that is a leading cause of acute kidney failure in children.

Symptoms include:
- Severe abdominal cramps
- Bloody diarrhea
- Nausea
- Vomiting
- Low-grade fever

Onset time:
- 2-4 days

Infective Dose:
- Small numbers (5-10 cells) of viable *E. coli* O157:H7 cells need to be consumed for symptoms of the illness to develop.

Duration of symptoms:
- 5-10 days

**Control:**
- Thoroughly cook ground beef products (155°F for 15 seconds or 160°F).
- Proper hand washing techniques when handling raw ground beef.
- Reheat foods to 165°F for 15 seconds.
- Proper sanitation of food contact surfaces and utensils.
- Refrigerate foods at 41°F or below.