

FOOD POISONING OUTBREAK

Yogurt Production Plant

Escherichia coli O157

What is Escherichia coli O157?

E. coli O157 is a strain of bacteria known to cause foodborne disease. The most commonly identified vehicles of this infection are ground beef and unpasteurized milk. Symptoms range from severe diarrhea to kidney and heart failure with acute cases leading to death. The disease is most common in infants and young children.

What Happened?

In late 1991, several confirmed cases of E. coli O157 infection were identified in the North West of England. The majority of cases were aged 10 years or less. Symptoms ranged from mild diarrhea to severe gastrointestinal disorders. Initial investigations suggested the outbreak was associated with the consumption of a locally produced, pasteurized milk yogurt.

Some Background on this Yogurt Production Plant

The raw milk was vat pasteurized, cooled to incubation temperature, and then pumped into milk cans with added starter culture for incubation. When the pH fell to 4.0-4.2, the milk cans were moved into a refrigerator to cool overnight. The next morning, the milk cans were upended with the yogurt dropping into a packaging reservoir. The yogurt was then packaged into cups and subsequently refrigerated.

Causes of Contamination in the Yogurt Production Process:

An inspection of the yogurt production plant indicated that the pasteurizing, incubating and packaging equipment were being adequately cleaned and sanitized. However, several

questionable operational practices were identified which may have caused the contamination. These included:

- 1) The pump for transferring raw milk to the pasteurizing vat was also used for transferring pasteurized milk into the milk cans for incubation.
- 2) The milk cans were often placed on the floor prior to transferring the cooled, incubated yogurt into the packaging reservoir. When the milk cans were upended, water on the bases of the milk cans would drop into the packaging reservoir.
- 3) No record was kept of the pasteurizing temperature and time. Once the temperature reached 85°C, the holding time was assessed by reference to a wall clock.

Conclusion

When all possible sources of contamination were corrected, production of uncontaminated yogurt resumed. While the cause(s) of the contamination was never confirmed, for the dairy plant manager this outbreak does highlight several poor operational practices which can lead to contaminated finished product, namely:

- 1) Cross-use of equipment between raw and pasteurized product.
- 2) Poor operational procedures leading to contamination from the plant environment.
- 3) Poor control or inadequate record keeping over the pasteurization process.

For further information contact the Dairy Plant Specialist at Food Protection Services

604.707.2440

