

Title Effect of Refrigerating Delayed Shipments of Raw Ground Beef on the Detection of *Salmonella typhimurium*

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### Abstract

In eight separate trials, four groups of raw ground beef samples were inoculated with 0.04 to 0.3 CFU/g of *Salmonella typhimurium* DT 104. Each group consisted of four samples, three inoculated and one uninoculated. After inoculation, raw ground beef samples were placed in shipping containers along with ice packs and transported by overnight courier from the USDA Eastern Regional Research Center in Wyndmoor, PA to the FSIS Eastern Lab in Athens, GA. A Temperature data logger was placed inside each shipping container to record the temperature during shipping and storage. The first group of ground beef samples was analyzed within approximately 1 h of arrival. The second group of samples was left in the original unopened containers for 24 h before processing. The third and fourth groups of samples were removed from the original shipping containers and stored at room temperature ( $21 \pm 2^\circ\text{C}$ ) for 6 h, then stored in a refrigerator at  $4 \pm 2^\circ\text{C}$  for 24 and 48 h, respectively, before analysis. The samples were analyzed for the presence of *S. typhimurium* according to USDA/FSIS Laboratory Guidebook MLG, Chapter 4.02. There was no significant difference in the presence and levels of *S. typhimurium* in ground beef samples among the four test groups. These data show that it is acceptable to process late-arriving ground beef samples for the detection of Salmonella if samples are stored at  $4 \pm 2^\circ\text{C}$  for 24 to 48 h, or when the samples remain in the original shipping containers for an additional 24 h.