Project Title: Application of Lactic Acid Sprays to Reduce the Presence of Bacterial Pathogens on Cold Beef Carcass Surfaces and in Subsequently Produced Ground Beef

Principle Investigators: G. Acuff, A. Castillo: Texas A&M University

Completion Date: January 2000

Layman’s Summary:

This study was designed to examine the possibility for reducing bacterial pathogens on chilled beef carcasses. A post-chill lactic acid spray was applied onto outside rounds that had been contaminated with Escherichia coli O157:H7 and Salmonella Typhimurium, subsequent to pre-chill treatments consisting of water wash or water wash followed by lactic acid spray. The pre-chill treatments reduced both pathogens by 3.3-3.4 log cycles (water wash alone) to 5.2 log cycles (water wash + lactic acid). In all cases the post-chill acid treatment produced an additional reduction in E. coli O157:H7 of 2.0-2.4 log cycles and o f1.6-1.9 logs for S. Typhimurium. The counts of both pathogens remained significantly lower in ground beef produced from the outside rounds that received pre- and post-chill acid lactic acid spray than from those that received a post-chill spray only. During field evaluations, the post-chill lactic acid spray significantly reduced aerobic plate counts, coliforms and E. coli counts. These data indicate that organic acid rinses may be successfully applied for pathogen reduction in beef carcass processing after the cooler, especially when combined with pre-chill treatment.