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

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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.

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