Title	Decontamination of Beef Cuts, Intended for Blade/Needle or Moisture-enhancement Tenderization by Surface Trimming vs. Rinsing with Solutions of Hot (82°C) Water, Warm (55°C) Lactic Acid or Activated Lactoferrin Plus Warm (55°C) Lactic Acid
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Abstract

The objective of this project was to investigate interventions that may minimize the risk of transferring *E. coli* 0157:H7 from the exterior, to the interior, of whole-muscle cuts during blade/needle or moisture-enhancement tenderization. Two-hundred outside round pieces were inoculated with an average of 4.17 log CFU/100 cm^2 of *E. coli* 0157:H7 with a 24-h culture. Inoculated pieces were vacuum packaged and stored for 10 to 18 days at 2-4°C. Enumeration using CT-Smac was performed on 100 cm^2 samples cut from each outside-round piece before and after interventions were applied and after further processing. Each piece was treated with one of five interventions: Positive control, (1) external trim using GMPs, (2) hot water (82°C) (3) warm 2.5% lactic acid (55°C), (4) warm 5.0% lactic acid (55°C), and (5) activated lactoferrin plus warm 5.0% lactic acid (55°C). Inoculated outside-round pieces were used as positive control. The mean reduction of *E. coli* 0157:H7 after interventions were applied were 1.10, 1.00, 0.99, 1.07 and 0.93, respectively. Mean *E. coli* 0157:H7 counts from the internal surface of outside-round pieces post-blade tenderization were non-detectable. Mean *E. coli* 0157:H7 counts from the internal surface of outside-round pieces post-moisture-enhancement were 2.13, 1.32, 1.23, 1.20, 1.15, and 1.39. The mean percent of *E. coli* 0157:H7 transferred from the external surface, post-intervention, to the internal surface, post-blade-tenderization, were 5.85, 3.63, 3.71, 4.52 and 4.68 for external trim, hot water, 5.0% LA and ALF + 5.0% LA. The mean percent transferred from the external inoculated surface before intervention to the internal surface after blade-tenderization were .82, .37, .41, .40, .51 and .38. The mean percent of *E. coli* 0157:H7 transferred from the external surface post-intervention to the internal surface, post-moisture-enhancement were 3.88, 4.97, 5.26, 5.55, 6.08, and 4.96. The mean percent of *E. coli* 0157:H7 transferred from the external surface of the inoculated outside-round pieces to the internal surface post-moisture-enhancement were 3.88, .65, .59, .82, .53, and .92.