Abstract:

Previous laboratory studies have demonstrated that snap/blasting chilling is known to significantly reduce some bacterial populations on pork surfaces, including Salmonella, Campylobacter, E. coli, and coliforms. However, very little information exists as to whether reductions observed under commercial conditions can be attributed to chilling parameters. In this study, individual carcass sponge samples (n=386) were obtained from commercially processed warm pork carcasses (n=188) and chilled pork carcasses (n=198) subjected to snap/blasting chilling or conventional chilling and evaluated for mesophilic aerobic plate counts (APC), generic E. coli (EC), coliforms (CF), as well as the presence/absence of Salmonella spp., Campylobacter spp., and Listeria monocytogenes. Carcass samples were obtained from one very small, three small, and three large pork processing establishments. Of these, three establishments used conventional chilling only and four establishments used snap/blasting chilling, followed by conventional chilling. Overall, warm carcasses exhibited average APC of approximately 7.09 log_{10} CFU/300 cm^2, average EC counts of 1.93 log_{10} CFU/300 cm^2, and average CF counts of 2.23 log_{10} CFU/300 cm^2. Salmonella spp., L. monocytogenes, and Campylobacter spp. were present on 2.1%, 1.2%, and 7.4% of the warm carcasses, respectively. Chilled carcasses exhibited average APC, EC, and CF of 5.21, 0.25, and 0.50 log_{10} CFU/300 cm^2, respectively. Pathogen prevalence on the chilled carcasses was 4.3% Salmonella spp., 0.05% L. monocytogenes, and 0.0% Campylobacter spp. In addition to microbial populations, chilling parameters, and carcass surface temperature were collected. This study demonstrates that commercial chilling conditions may reduce most bacterial populations associated with pork carcasses. This information may provide processors with an additional means to control microbes in/on freshly slaughtered pork, thereby improving the microbiological safety of pork products.

These research results were submitted in fulfillment of checkoff funded research projects. This report is published directly as submitted by the project’s principal investigator. This report has not been peer reviewed.

For more information contact:
National Pork Board, P.O. Box 9114, Des Moines, Iowa USA
800-456-7675, Fax: 515-223-2646, E-Mail: porkboard@porkboard.org, Web: http://www.porkboard.org/