Longitudinal Mapping of Campylobacter on Poultry Carcasses

Campylobacteriosis is a leading cause of foodborne disease worldwide, and is the most frequently reported bacterial illness in New Zealand. Poultry, and poultry products, represent an important risk factor for campylobacteriosis in humans as *Campylobacter* can be transferred onto poultry meat and offal from the gastro-intestinal tract of infected birds before or during poultry processing.

A key element in controlling this disease is to reduce the numbers of *Campylobacter* on poultry carcasses during primary processing. As such, it is important to identify and understand which dressing procedures contribute to increased carcass loading with *Campylobacter* and which operations reduce bacterial contamination.

This study was conducted to quantitatively describe changes in *Campylobacter* spp. carcass loading, as defined by rinsate counts, during different stages of primary poultry processing and to relate these data, if possible, with the dressing procedures used in the two participating poultry processors. Rinsate samples were taken from the cavity, neck, vent, wings, legs and skin of carcasses at three separate stages of processing: following de-feathering; following evisceration; and following spin-chilling.

The count of *Campylobacter* on carcasses following defeathering from processor B was greater than that of processor C, and at each subsequent processing step. *Campylobacter* counts on the carcass reduced considerably during evisceration at processor B but this did not occur at processor C. The spin chill process was very effective at reducing *Campylobacter* counts at both processors; counts on the final product from processor B remained higher than those from processor C.

Different patterns of *Campylobacter* carcass contamination during processing were observed at the two participating processors. For instance after defeathering Processor B had very little of the total detectable *Campylobacter* in the neck and wings compared to Processor C, but had greater percentages of the counts in the carcass rinsates from the vent and skin rinsates.

While the study did not specifically identify procedures, only processing steps that resulted in the observed contamination differences, the report postulates reasons for the differences observed which will enable processors to concentrate efforts for maximum improvement.

This study has shown different patterns of *Campylobacter* presence and reduction at two processors. It has also shown the benefits of a structured study at various dressing stages and at various carcass sites for evaluating the effectiveness of dressing procedures and decontamination interventions for minimising *Campylobacter* contamination. This will be especially useful for processors that have exceeded targets as set under the National Microbiological Database scheme. Processor B has installed new dressing equipment after the trial and has reported a subsequent improved performance.

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