Processors

*Campylobacter on Poultry Carcasses*

In the U.S., several studies reported that a large percentage of processed broiler carcases were contaminated with high numbers of *Campylobacter*. In general, prevalence and level of carcass contamination by *Campylobacter* in the processing plant increases after de-feathering and evisceration while it decreases after scalding and chilling. Prevalence of *Campylobacter* on poultry carcases at the end of processing lines (post-chill) is usually over 50%, varying from 0 to 100%. Reported levels of *Campylobacter* contamination of carcases vary with countries, seasons and studies, and are usually lower on the final product (post-chill) than during earlier processing stages in a plant, ranging from <101 to >105 CFU per carcass or per ml of carcass rinsate or per gram of neck skin.

**Source of Campylobacter Carcass Contamination**

Carcass contamination by *Campylobacter* is attributable to the farm of origin as high prevalence on farms is usually associated with high-level carcass contamination in processing plants. High numbers of *Campylobacter* in poultry intestinal tracts result in contamination of carcases during the slaughter process. On-farm control of *Campylobacter* would have a great impact on carcass contamination because the intestine of living poultry is the main amplification point for *Campylobacter* throughout the food chain. Reduction or elimination of *Campylobacter* in intestinal tracts of poultry entering processing plants is an essential step to control this food safety problem. However, no current on-farm measures have proven to be completely effective, reproducible or practicable for controlling *Campylobacter* under commercial production conditions. Poultry carcases can also be cross-contaminated by *Campylobacter* present in the plant processing environment originating from preceding slaughter batches. Additional measures are needed in processing plants to further reduce contamination of poultry meat with *Campylobacter*. Quantitative risk assessment models have indicated that a reduction of *C. jejuni* numbers on a broiler carcass by 100-fold (or 2 log units) could result in a significant reduction (30 times less) in the incidence of campylobacteriosis in humans.

**Postharvest Control of Campylobacter on Poultry Carcasses**

Numerous studies (both laboratory and commercial plant-based) have investigated potential interventions in processing plants to reduce *Campylobacter* on poultry carcases. Evaluated measures include rapid freezing, hot water treatment, irradiation, modified atmosphere packaging, vacuum drying/cooling, and chemical decontamination via chlorine sprays and/or chlorination of processing water. Depending on the specific processing stage, the use of several practices such as time, temperature, pH, direction of water flow, and antimicrobial solutions can substantially affect the level of carcass contamination by *Campylobacter*. High pH (9.8) scald appears more effective than standard pH (6.8) scald in reducing the level
of *Campylobacter* on broiler carcasses. Since fecal release occurs readily during de-feathering and evisceration, general equipment sanitation, multiple rinsing of equipment and carcasses during and after each step with chemicals may have significant effect on carcass contamination.

Despite the improved understanding, *Campylobacter* continues to be highly prevalent on poultry carcasses worldwide including the U.S., which necessitates development of more effective, feasible and sustainable plant-based interventions.