

**Title:** National survey of *Salmonella* prevalence in lymph nodes of sows and market hogs – NPB#16-059

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### Scientific Abstract:

Livestock species are known to harbor *Salmonella* in their gastrointestinal (GI) tract and lymphatic tissues. Contamination of carcass surfaces with pathogens harbored in GI tract contents can be mitigated, at least in part, by carcass surface interventions. Lymphatic tissues are generally encased in fat protecting them from carcass surface decontamination treatments, thus serving as a possible root-cause of foodborne illness outbreaks attributed to *Salmonella* in meat products.

By researching the prevalence of *Salmonella* from porcine LNs across the U.S., pork industry members are able to better understand the impact of *Salmonella* as a potential contaminant in pork products. A total of twenty-one commercial pork harvest and processing facilities participated in the study. Facilities were categorized as either north ( $n = 12$ ) or south ( $n = 9$ ) geographical regions. As processing volumes allowed, twenty-five carcasses were selected at each establishment, and left and right superficial inguinal LNs ( $n = 1,014$  LNs) were removed. For each carcass, left and right LNs were pooled, yielding one sample per animal or  $n = 507$  total LN samples. LNs were then subjected to *Salmonella* prevalence determination. *Salmonella* prevalence rates differed ( $P < 0.05$ ) between hog types in both regions. Specifically, 6.4% of market hog and 37.0% of sow LN samples were found to be *Salmonella*-positive in the north region. This relationship is reversed in the south region as 13.0% of market hog and 4.8% of sow LN samples returned *Salmonella*-positive results. Furthermore, there was a difference ( $P < 0.05$ ) in prevalence rates between regions (north and south) for sows, but not market hogs ( $P > 0.05$ ).

Type of chilling method (conventional, blast, other) used at each facility was documented. Chilling method only relates to the market hogs, as all sow carcasses were hot-boned. In the northern region, prevalence rates of *Salmonella* across chilling types were distributed as follows: 20.0, 2.7, and 1.3% positive samples for conventional, other, and blast chill methods, respectively. Additionally, in the south, there were 20.0% positive samples for conventional, 0.0% for blast, and 12.0% for other chill methods. In both regions, samples from conventionally chilled carcasses returned more ( $P < 0.05$ ) positives results than any other chill method.

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