Objectives

Antimicrobial interventions are applied to carcass surfaces to mitigate pathogens transferred during harvest. While highly effective, carcass surface interventions are unable to reduce pathogens located within fat-encased lymph nodes (LNs). For this reason, LNs have been identified as a potential cause of Salmonella in beef and pork products. The objectives of this study were to (1) establish a baseline for Salmonella prevalence in LNs of sows and market hogs in the United States, and (2) to determine the impact of carcass chilling methods on Salmonella prevalence in surveyed LNs.

Materials and Methods

A total of 21 commercial pork harvest facilities were categorized by region and hog type (n = 8 northern market hog, n = 4 northern sow, n = 4 southern market hog, and n = 5 southern sow). As processing volumes allowed, 25 carcasses were selected from each establishment. From each carcass, left and right superficial inguinal LNs were removed, pooled (n = 507 total LN samples), and subject to Salmonella prevalence determination. Additionally, type of carcass chilling method (conventional, blast chill, or other) used at each facility was recorded.

Results

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 northern region; in the southern region, 13.0% of market hog and 4.8% of sow samples were Salmonella-positive. There was a difference (P < 0.05) in prevalence rates between regions (northern and southern) for sows, but not market hogs (P > 0.05). In the northern region, prevalence rates of Salmonella across
chilling types were as follows: 20.0, 2.7, and 1.3% positive for conventional, other, and blast chill methods, respectively. Additionally, in the southern region, there were 20.0% positive samples for conventional, 0.0% for blast chill, and 12.0% for other chill methods. In both regions, samples from conventionally chilled carcasses returned more ($P < 0.017$) positive results than any other chill method.

**Conclusion**

The higher rate of *Salmonella* prevalence in northern sows warrants further investigation. Members of the pork industry would benefit from the identification of subsequent research needs or possible process improvements to address the presence of *Salmonella* in porcine LNs.