

## PORK SAFETY

**Title:** Does pre-slaughter transportation and lairage affect *Salmonella enterica* shedding prevalence and levels in market pigs? - #07-025

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### Scientific Abstract:

This research was conducted with the objective of determining the effect of pre-slaughter transportation and lairage on *Salmonella enterica* shedding prevalence, shedding levels of total *Enterobacteriaceae* and *Lactobacilli*, and proportion of the sub-populations of antimicrobial resistant *Enterobacteriaceae* and *Lactobacilli* in market pigs, under commercial conditions. Five replicates of the experiment were conducted with 30 pigs each. Each animal was individually identified and fecal samples collected immediately before moving the animals from their resident pens to a transport trailer (pre-transport), immediately upon arrival at the abattoir (post-transport), and after approximately 2 hours of pre-slaughter resting (post-lairage). *Salmonella* prevalence increased significantly between each one of the defined sampling points (11.3% pre-transport, 20% post-transport, and 42% post-lairage). The total *Lactobacilli* population enumerated was significantly higher than the total *Enterobacteriaceae* population at all sampling points. No effect on the total numbers of total *Enterobacteriaceae* or total *Lactobacilli* was observed. No quantitative effect was observed on sub-populations of *Enterobacteriaceae* resistant to ampicillin, tetracycline, and gentamicin. Also, no quantitative effect on sub-populations of *Lactobacilli* resistant to tetracycline and erythromycin was observed. However, a significant quantitative increase of the ampicillin-resistant *Lactobacilli* was observed from the pre-transport to the post-lairage sampling. This research suggests that effects of stress on the microbial ecosystem of the gastrointestinal tract of swine differ between groups of bacteria, and also between its sub-groups. Our findings reveal a critical need for further research to advance our knowledge on the quantitative effects of stress on microbial populations of the gastrointestinal tract of swine and its potential food safety implications.

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