

RESEARCH ABSTRACT



PORK SAFETY

Title: Antibody to *Salmonella* spp., culture status, and associated risk factors among slaughtered pigs. **NPB #98-146.**

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Abstract:

Antibodies to *Salmonella* in pigs can be detected, indicating that pigs were exposed to one or more serotypes of *Salmonella*. We measured antibodies to *Salmonella* spp. in 3,354 pigs from 145 commercial pig herds in the upper Midwest. A mixed-antigen ELISA test was applied to meat-juice samples, detecting antibody response to many *Salmonella* species. We classified pigs into relatively lower (category I) and higher (category II) antibody response, with the threshold set by a cluster analysis. Overall, 45.6% of pigs were in category II (95% CI 43.9-47.3%). The variation in within-herd prevalence was large (SD 30.6%), suggesting a diversity of *Salmonella* cycling patterns among farms. Prevalence of category II antibody response was a poor predictor of *Salmonella* culture prevalence at slaughter. Herd or barn factors associated with an increased risk of high antibody category II prevalence were partial slotted or solid flooring (OR 3.75, $p=0.09$), poor growth performance (OR 6.8, $p = 0.08$) and bird access to the barn (OR 4.48, $p=0.05$). Batch pig flow (OR .35, $p=0.09$) and access to rodents (OR 0.2, $p = 0.07$) were associated with a decreased risk of antibody category II status. These findings suggest that improved hygiene may reduce *Salmonella* cycling and/or exposure on farms. The apparent protective association with rodent exposure is unexpected and not biologically plausible. It is possible that farms with rodent exposure tended to have other, unmeasured characteristics that could account for the apparent protective association. Further study of these factors is needed to test their effectiveness at reducing *Salmonella* exposure and cycling.

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