The Effects of Feed Deprivation on Shedding of *Salmonella typhimurium* in Swine

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The role that management decisions on swine production units play in both food safety and the on-farm ecology of human and animal pathogens such as *Salmonella* spp. has yet to be defined. Two management areas that may have profound impact on *Salmonella* ecology are transport and feed deprivation. Both transport and feed deprivation are animal stressors and may predispose asymptomatic carriers of *Salmonella* to shed. A pattern of shedding in response to stress has been shown to occur in cattle and poultry. The following information reflects results from a study of market hogs. Pigs from this production unit were known to be asymptptomatically infected with *Salmonella typhimurium*.

**Study Design and Results:** Study pigs (n=118) from a commercial finishing floor (all in-all out) were randomly allocated to one of two groups: a full feed group prior to slaughter and 24 hour feed deprivation prior to slaughter. Fecal samples were collected from all pigs 48 hours prior to slaughter and evaluated for the presence of *S. typhimurium*. Twenty four hours prior to slaughter, pigs were weighed and feed removed from pens of the feed deprived group. Six hours prior to slaughter, pigs were loaded onto a truck and transported to slaughter, transport time was three hours. At slaughter, intestines were removed and weighed and rectal contents and ileo-cecal regions were sampled and evaluated for the presence of *S. typhimurium*.

Feed deprived pigs had significantly reduced gut fill at slaughter. Prior to shipping, approximately 12% of pigs from both groups were found to be shedding *Salmonella* spp. Following shipping, there was a small increase in the rate of *Salmonella* shedding from both groups. The full feed pigs were consistent in shedding pre- and post shipping while the feed deprived group had more pigs change *Salmonella* status pre- and post-shipping.

**Future Directions:** Other results of the study suggested that feed withdrawal affected carcass quality. A concern regarding the results was that the hot and humid weather during the study period might have confounded the results, particularly since a previous study on feed withholding suggested that it did not affect carcass quality. We plan to repeat the study in cool weather and add an additional group with a shorter feed withhold (18 hours).