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Impact of animal management and transportation factors on transport losses in market weight pigs

M.J. Ritter*¹, M. Ellis¹, C.R. Bertelsen¹, R. Bowman², J. Brinkmann², J.M. DeDecker¹, O. Mendoza¹, C.M. Murphy¹, D.G. Orellana¹, B.A. Peterson¹, A. Rojo¹, J.M. Schlipf¹, and B.F. Wolter²

¹University of Illinois, Urbana, IL, USA

²The Maschhoffs, Inc., Carlyle, IL, USA

Three studies were carried out to investigate the impact of animal management and transportation factors on losses of market weight pigs on arrival at the plant. Study 1 evaluated the impact of: 1) Trailer design (pot-belly vs. straight-deck) and 2) Season (spring vs. summer vs. fall vs. winter) using 109 trailer loads from one farm (17,256 pigs; Mean BW = 129.6 ± 0.40 kg). This study was conducted on seven days per season, and two pot-belly and two straight-deck trailers were loaded per day. Pigs from different farm pens were mixed on the trailer, floor space during transport was ~ 0.45 m²/pig, and the journey time was ~ 4 hours. Pigs from pot-belly trailers exhibited a higher ($P < 0.05$) incidence of physical indicators of stress (open-mouth breathing and skin discoloration) on unloading at the plant in the spring and summer than pigs from straight-deck trailers. However, there was no effect of trailer design on the incidence of total transport losses (0.96 vs. 0.85 ± 0.11 %, respectively for pot-belly and straight-deck trailers). The incidence of non-ambulatory pigs on arrival at the plant was higher ($P < 0.05$) in the winter than in the spring and summer (0.42 vs. 0.35 vs. 0.60 vs. 0.66 ± 0.11 %, respectively for spring, summer, fall, and winter), but there was no effect of season on deads on arrival, non-ambulatory, injured pigs, non-ambulatory, non-injured pigs, or total losses. Study 2 used 35 trailer loads (3,827 pigs; Mean BW = 127.7 ± 0.31 kg) to evaluate the effects of: 1) time off-feed prior to loading (0 vs. 24 h) and 2) floor space on the trailer (0.39 vs. 0.46 vs. 0.54 m²/pig). Study 3 used 37 loads (4,002 pigs; Mean BW = 128.3 ± 0.43 kg) with treatments:

1) mixing of pigs from different farm pens during transport (unmixed vs. mixed) and 2) transport floor space (0.39 vs. 0.46 vs. 0.54 m²/pig). For Studies 2 and 3, pigs from the same farm were transported ~ 140 km to a commercial packing plant in either February-March or August-September. Time off-feed and mixing during transport had no effect on transport losses. Therefore, data from Studies 2 and 3 were combined to evaluate the effects of transport floor space on transport losses. Transporting pigs at 0.39 m²/pig compared to 0.46 and 0.54 m²/pig increased ($P < 0.05$) non-ambulatory pigs (0.39 vs. 0.12 vs. 0.14 ± 0.09 %, respectively), but did not affect the incidence of deads on arrival, or non-ambulatory, injured pigs at the plant. Floor space effects on the incidence of non-ambulatory, non-injured pigs and total losses at the plant varied depending on the time of year. For loads transported in February-March, there was no effect of floor space, however, for loads in August-September, pigs at 0.39 m²/pig had higher ($P < 0.05$) incidences of non-ambulatory, non-injured pigs (0.38 vs. 0.00 ± 0.08 %, respectively) and total losses (0.72 vs. 0.16 vs. 0.00 ± 0.13 %, respectively) than pigs with 0.46 and 0.54 m²/pig. These results suggest that season and trailer design had minimal effects on transport losses, but pigs transported in pot-belly trailers may exhibit more physical signs of stress on unloading than pigs transported in straight-deck trailers in certain seasons. Also, these results confirm that floor space on the trailer has a major impact on transport losses, but suggest that the effect is dependent upon transport conditions.