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# Loading gantry versus traditional chute for the finisher pig: Effect on welfare parameters at time of marketing

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Pig mortalities from the farm to the harvest facility are estimated to cost the U.S. swine industry over 55 million dollars annually. In addition, fatigued (also known as downers or non-ambulatory) pigs disrupt standard animal flow resulting in reduced processing plant and transportation efficiencies. Currently, it is unclear which event or combinations of events are to blame for these losses. The objective of this study was to determine if chute design affects the welfare of finishing pigs at the time of marketing. Data from a total of 42 semi loads of crossbred finisher pigs (116.5 kg) from a single finishing site were collected. Two loading tools (prototype loading gantry [P] vs. traditional chute [T]) were compared in two different experiments. Experiment one (n = 27) included the comparison of two loading tools on the first pigs marketed from a finishing facility or first pull [FP] pigs. Experiment two (n = 15) included the comparison of two loading tools on the last pigs marketed from a finishing facility or closeout [CO] pigs. Pigs were loaded using a Midwest Integrator-approved Swine Welfare Assurance Program™ (SWAP+) market load assessment, which combines the National Pork Board's SWAP program and the American Meat Institute's Animal Handling Audit. This assessment included facility evaluation (chute angle and cleat spacing), adherence to the integrator market pig loading standard operating procedure and transportation standard operating procedure (density and environmental management). Welfare parameters evaluated were electric prod use, slips, falls, vocalizations and piling. Data were analyzed using the PROC Mixed procedure of SAS where

dependent traits were evaluated with a model including loading tool, barn, load number and shipping day as fixed effects, and number of pigs shipped as a linear covariate. All non-significant sources of variation were removed from the final analyses models. In experiment one, chute design (P vs. T) was a source of variation ( $P < 0.05$ ) for all welfare parameters. Pigs loaded using the P chute received 67 fewer prods, experienced 119 fewer slips, 58 fewer falls and vocalized 72 fewer times per load when compared to pigs loaded using the T chute. Pigs loaded using the P chute piled up in the chute 3.4 fewer times per load when compared to those loaded with the T chute. In experiment two, chute design (P vs. T) was a source of variation ( $P < 0.05$ ) for the incidence of slips and falls. Pigs loaded using the P chute experienced 198 fewer slips and 70 fewer falls per load when compared to pigs loaded using the T chute. A trend ( $P = 0.06$ ) for incidence of electric prod use was seen when comparing loading tools with pigs loaded using the P chute tending to receive fewer prods when compared to pigs loaded using the T chute. In conclusion, loading tool played an integral role in the welfare parameters of finisher pigs at the time of marketing. Further investigation is required to characterize the relationship between handling stress endured in the loading system, and the incidence of fatigued and dead pigs during transportation and at the packing plant, and its subsequent role in the development of pork quality.

