

'Pig-Friendly' Loading Chute Minimizes Loading Stressors

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Pigs marketed on a prototype loading gantry were exposed to fewer stressors, including electric prods and incidence of slips, falls, vocalizations and piling.

Pig mortalities from farm to harvest are estimated to cost the U.S. swine industry over \$55 million annually. Switching from a traditional loading chute to a loading gantry will help limit those losses.

Data was collected on 74 semi-loads of crossbred finisher pigs from a single commercial finishing site in Missouri from November 2006 to August 2007.

Two loading protocols were compared in two experiments by a team of Iowa State University (ISU) scientists. The first experiment (44 semi-loads) compared two loading tools on the first pigs (first pull or FP, Table 1) marketed from the finishing facility. The second experiment (30 semi-loads) compared two loading tools on closeout pull (CO, Table 2) or last pigs marketed from the finishing facility.

The first loading tool design (T) was a traditional, metal-covered chute, which was 30.5 in. wide, 7.6 ft. high and 15 ft. long. The T chute featured a flat pivot section on each end to accommodate the angle that the truck backs into the chute, and allowed loading two pigs onto the truck at the same time. The ramp angle to load pigs onto the truck was 19 degrees to the bottom deck; the internal ramp angle was raised 23 degrees for finisher pigs to access the upper trailer deck.

The second design (P) was a prototype-loading gantry, aluminum-covered chute. The chute was 36.56 in. wide, 10 ft. high and 29.7 ft. long. Flooring was Vanberg epoxy-coated metal (feels like concrete), with an inverted stair-step design with 1-in.-high cleats spaced 8 in. apart.

The prototype loading gantry allowed two pigs to climb onto the truck at the same time from a flat plane. The ramp incline was 7 degrees to the truck's bottom deck and 18 degrees to the upper deck.

The second chute features a special lighting design that minimizes shadows. A bumper dock system features a self-extending system that eliminates gaps at the barn and trailer. An electric jack screw system mechanically moves and operates the chute into position as well.

Pigs were loaded using the National Pork Board's Swine Welfare Assurance Program and the American Meat Institute's Animal Handling Audit. Those assessments included facility evaluation, proper loading and transportation procedures, and evaluation of welfare parameters as hogs are loaded onto the trailer.

Researchers found the loading tool does appear to play an integral role in the welfare parameters of pigs at the time of marketing, favoring the P chute, and having a positive influence in stress reduction at the time of load out, regardless of pull at marketing.

Although not addressed statistically, it appears that pigs loaded during the closeout period experienced more prods, slips, falls, vocalizations and pileups when compared to those pigs marketed first.

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Table 1. First Pull (FP) Welfare Parameters

Item ^b	Chute Type ^a	
	<u>T</u>	<u>P</u>
Electric prods	161.59	96.25
Slips	247.91	96.02
Falls	100.42	20.18
Vocalizations	138.06	69.08
Pileups	3.59	0.01

T = Traditional chute; *P* = Prototype loading gantry;

*b*Electric prods = any time the prod touched any portion of the pig's anatomy; Slips = any time the pig's foot lost contact with the ground in a non-walking manner; Falls = any time a pig lost contact with the ground and a non-limbic portion of the animal touched the ground; Pileups = any time two or more of the pig's feet lost contact with the ground and were on top of another animal.

Table 2. Closeout Pull (CO) Welfare Parameters

Item ^b	Chute Type ^a	
	<u>T</u>	<u>P</u>
Electric prods	188.23	108.12
Slips	302.48	106.02
Falls	115.37	24.75
Vocalizations	140.44	79.21
Pileups	4.63	0.10

*a*T = Traditional chute; *P* = Prototype loading gantry;

*b*Electric prods = any time the prod touched any portion of the pig's anatomy; Slips = any time the pig's foot lost contact with the ground in a non-walking manner; Falls = any time a pig lost contact with the ground and a non-limbic portion of the animal touched the ground; Pileups = any time two or more of the pig's feet lost contact with the ground and were on top of another animal.