



Hog-Handling Update™

By Dr. Matt Ritter

TIPS FOR BETTER PIG HANDLING

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Effects of facility design on transport losses at the packing plant

Introduction

A growing area of interest within pig handling and transportation is the use of large pens with pre-sorting capabilities. Auto-sort systems utilize large pens (~500 pigs/pen), allow pigs to move freely throughout the building during the grow-finish period, weigh pigs daily prior to entering food courts, identify pigs that meet targeted market weights, and pre-sort those pigs prior to loading into a loading pen by the barn exit. Recent survey data has suggested that auto-sort systems may reduce transport losses at the packing plant.^{1,2}

Despite this potential reduction in dead and non-ambulatory pigs, many pork producers have expressed frustration with auto-sort systems due to the learning curve of the software, the time required to train the pigs, the upkeep of the system, difficulties associated with identifying and treating sick pigs and potentially negative effects on growth performance traits.³ Therefore, some pork production systems in the U.S. are currently evaluating large pen configurations (≥ 200 pigs/pen) during the grow-finish period, and then are having site personnel manually pre-sort the market-weight pigs from pen mates prior to loading by using internal swing gates. Industry accounts have suggested this is an effective approach to reduce transport losses at the packing plant, but controlled research is necessary to confirm these reports.

Overview

A collaborative research project was recently conducted by Iowa State University, Iowa Select Farms, JBS Swift and Elanco Animal Health.⁴ This trial utilized 33 trailer loads of pigs ($n = 5,901$) from three wean-to-finish sites to determine the effects of two different facility design systems (traditional vs. new) on loading time, physical signs of stress (during loading and unloading), and transport losses at the plant in market-weight pigs. The two facility design systems were evaluated within each room at each site and were created by either closing or opening the internal swing gates that were positioned between the feeder and the wall. The traditional facility design housed pigs in pens of 32, and market-weight pigs were not pre-sorted prior to loading. Meanwhile, the new facility design housed pigs in pens of 192 by opening four internal swing gates, and these swing gates were later utilized to manually pre-sort market-weight pigs ~24 hours prior to loading.

Results

When compared to the traditional facility design (pens of 32, not pre-sorted), utilizing the new facility design system (pens of 192, pre-sorted prior to loading) reduced:

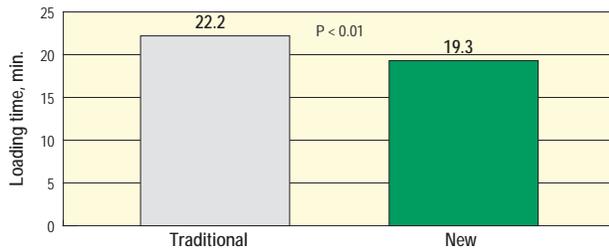
- The amount of time needed to load a trailer deck ($n = 89$ pigs/deck) by 2.9 minutes (Figure 1)
- The percentage of pigs displaying open-mouth breathing, skin discoloration and muscle tremors during loading (Figure 2) and unloading (Figure 3)
- The percentage of dead and non-ambulatory pigs at the packing plant, resulting in 66% fewer total transport losses (Figure 4)

Implications

By raising pigs in pens of 192 and manually pre-sorting marketweight pigs 24 hours prior to loading (new facility design), total transport losses at the packing plant were reduced by 66% compared to the traditional facility design (pens of 32, not pre-sorted). However, there are several questions that should be researched before adopting the new facility design in your system, and these questions include:

- Is the 66% reduction in dead and non-ambulatory pigs due to raising pigs in large pens and / or due to the management practice of pre-sorting market-weight pigs prior to loading?
- What is the optimal time to pre-sort market-weight pigs prior to loading?
- What is the cost and time needed to pre-sort a trailer load of pigs?
- If pigs are pre-sorted, how many people are needed to load?
- Are there any negative effects of raising pigs in large pens on growth performance traits or morbidity/mortality?

Figure 1. Effects of facility design on loading time*



* Refers to the amount of time required to load a trailer deck (n = 89 pigs)

Figure 2. Effects of facility design on physical signs of stress during loading

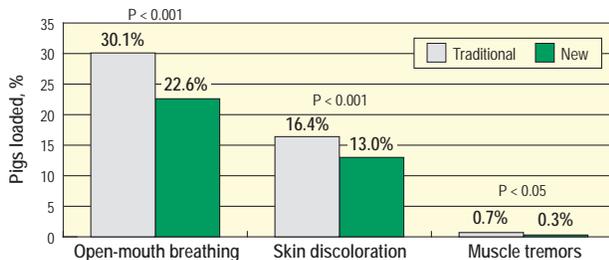


Figure 3. Effects of facility design on physical signs of stress during unloading

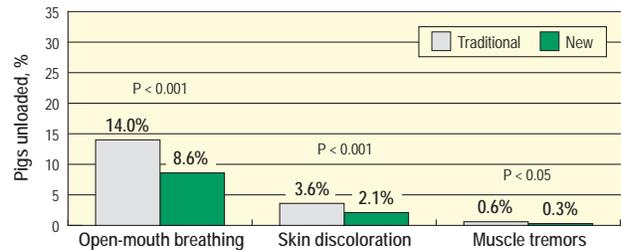
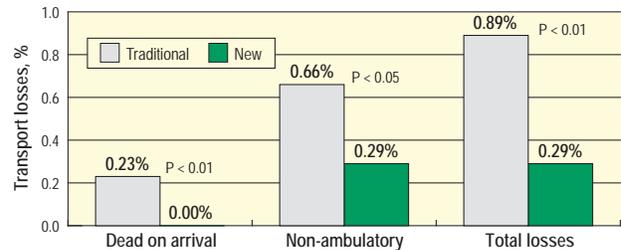


Figure 4. Effects of facility design on transport losses at the packing plant



Total losses = dead on arrival + non-ambulatory pigs at the plant

References

- 1 Brumsted, M. 2004. "Automatically sorted, large pen finishing barns reduce death loss during transportation to market." Proc. AASV (Abstr.): 47. (Abstr.) 47.
- 2 Rademacher, C. and Davies, P. 2005. "Factors associated with the incidence of mortality during transport of market hogs." Proc. Allen D. Leman Swine Conf.: 186-191.
- 3 Gonyou, G. and Whittington, D. 2006. "Large group auto-sort: potential and problems." Accessed 3/18/09. <<http://www.prairieswine.com/publications/pdf-ar/Annual%20Report%202006.pdf>>.
- 4 Johnson, A., Sadler, L., Gesing, L. et al. 2010. "Effects of facility system design on the stress responses and market losses of market-weight pigs during loading and unloading." Prof. Anim. Sci. 26: 9-17.

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Handling Help?

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- Load-site assessments
- Loading crew and driver training
- Facility design evaluations
- Standard Operating Procedure (SOP) development
- Developing databases to track transport losses

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