

Monitoring the effects of transport on the behaviour, physiology, carcass and meat quality of pigs through the study of truck micro-climate, vibrations and cooling systems

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Project Status: Completed in 2018

This study showed that using a fan-misting bank on stationary pig trailers prior to unloading at the slaughter plant significantly improves internal trailer conditions and pig comfort.



Combined water sprinkling and ventilation system.
Source: Sherbrooke Research and Development Centre, AAFC

ventilation, followed by 10 minutes of ventilation and water misting, and then finally 10 minutes of ventilation using the fan-mister banks located near the unloading dock. The second trailer (the control) was not exposed to any cooling procedure at all over the 30-minute wait.

The results of this study indicated that employing a fan-misting bank efficiently reduced the temperature within the compartments of the trailer. For the pigs, it also resulted in better thermal comfort as well as a reduction in dehydration at slaughter. However, the effects of the fan-misting bank varied between the different compartments of the trailer. This suggests a need for improvements to be made to trailer design, especially regarding the pattern of side ventilation openings and internal gate types, in order to increase the efficiency of this cooling system. Finally, it was found that the cooling system had no major impact on carcass or meat quality.

Why was this study done?

Researchers wanted to evaluate, in warm conditions, the impact that ventilation and water misting would have on the behaviour, physiology, carcass and meat quality of pigs waiting to be unloaded at the slaughterhouse. Researchers also wanted to assess the impact of vibration during transport to the slaughterhouse on the posture of the pigs (for example, standing, sitting or lying down).

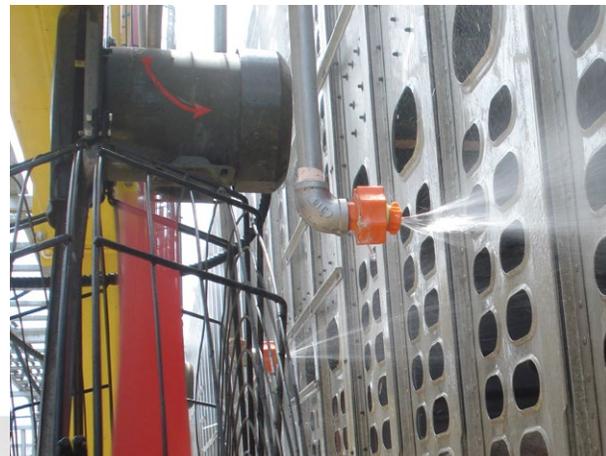
What was done and what was the outcome?

Over the summer of 2015, two identical pot-belly trailers were used to transport twelve loads of pigs (six loads per trailer) to the slaughter plant. Upon arrival, the trailers remained stationary for 30 minutes prior to unloading. During this period, one trailer was exposed to 10 minutes of fan-assisted

Collaborators

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|--------------------------|--|
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Additional project information

Click on the links below for further information on this project

Links were last updated in 2022

R&D Featured Articles—by Geoff Geddes for Swine Innovation Porc

Articles may be found at: <http://www.swineinnovationporc.ca/resources-e-newsletters.php>

- [Conestoga a Big Fan of Pig Cooling System](#)
- July 2019 (Vol. 4, No. 8.)
- [Cooling Systems for Pigs a Hot Topic](#)
- February 2018 (Vol. 2, No. 5.)

Farmscape Interviews:

- **Banff Pork Seminar Audio Special: Swine Transportation: Science-based Solutions to Current Issues**
- January 12, 2017
- [Scientists Examine Effects of Vibration in Transit on Pig Comfort and Meat Quality](#)
- October 21, 2016
- [Research Shows Fan Bank Ventilation Effective in Regulating Swine Body Temperature](#)
- October 14, 2016
- [Study to Examine Benefits of Water Sprinkling and Ventilation Fans in Reducing Heat Stress During Transport](#)
- November 27, 2014

Peer-reviewed articles and abstracts:

2018

- Faucitano, L. (2018) [Preslaughter handling practices and their effects on animal welfare and pork quality](#). Abstract. *Journal of Animal Science*, 96 (Issue 2): pp. 728-738.
DOI: <https://doi.org/10.1093/jas/skx064>

2017

- Faucitano, L., Goumon, S. (2017) [Transport of pigs to slaughter and associated handling. Chapter 9](#). In: *Spinka, M. (ed.), Advances in Pig Welfare 1st Edition, Woodhead Publishing, Cambridge, UK. ISBN: 9780081010129*.
Available for purchase at: <https://www.elsevier.com/catalog?producttype=book>



Additional reading:

2019

- Benoit-Biancamano, M.O. (2019) [Determine the age of lesions to improve the welfare of pigs](#). Online Article (French only). *LaTerre De Chez Nous*. Retrieved from: <https://www.laterre.ca/categorie/actualites/elevages>

2018

- Faucitano, L. (2018) [Preslaughter handling practices and their effects on animal welfare and pork quality](#). Abstract. *Journal of Animal Science*, 96 (Issue 2): pp. 728-738. DOI: <https://doi.org/10.1093/jas/skx064>

2017

- Faucitano, L. (2017) [Swine transportation: science-based solutions to current issues](#). Oral presentation. *Advances in Pork Production (Banff Pork Seminar)*, Vol. 28: pp. 69-76. Retrieved from: <https://www.banffpork.ca/proceedings/search>

2016

- Pereira, T., Conte, S., Devillers, N., Somnavilla, R., Friendship, R., Guay, F., Dalla Costa, F., Titto, E., Faucitano, L. (2016) [Effects of ventilation and water misting on the physiological response of pigs kept in a stationary trailer before unloading](#). Abstract. *Journal of Animal Science*, 94 (Suppl. 5): p. 43. DOI: <https://doi.org/10.2527/jam2016-0092>

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