CREATURE COMFORTS

What features of livestock transport trailers enhance animal welfare & biosecurity?

Most of us are familiar with seeing aluminum livestock transport trailers on the roads and highways in Canada and the USA. Over the years, not much has changed regarding the types of trailers used for livestock transport in North America. The standard model aluminum transport trailers are equipped with passive ventilation through perforations in the side walls and are not temperature regulated. Growing changes in the livestock transportation industry including awareness of animal welfare concerns and the need for improved biosecurity have prompted the need to re-evaluate the current transport trailer design. The *Improving Biosecurity and Welfare of Animals During Transportation* project is working on continuing to enhance the design of a prototype livestock transport built under the 2014 - 2018 *Canadian AgriSafety Program* which is completely enclosed and provides a filtered air environment and thus enhanced biosecurity. With the continuation of the project, the team will be integrating additional features to the trailer to enhance animal welfare and continue to improve the biosecurity characteristics of the trailer.

Research has shown that transportation is the most stressful aspect of life for livestock that are raised and destined for our tables. This shouldn't come as a surprise, as it is during transport that animals may be subjected to fatigue, injury, food and water deprivation, poor animal handling, overcrowding, and exposure to extreme temperatures, pathogens, noise and vibrations. Temperature and humidity can be particularly stressful for pigs since they cannot sweat to help regulate their body temperature. Looking at trailer designs currently in place in Europe has provided ideas and strategies for improving the original prototype trailer developed by the research team at Prairie Swine Centre.

The swine industry has identified several features of the standard model aluminum trailers that cause problems with animal welfare as well as biosecurity. Standard trailers provide passive ventilation through holes in the sides of the trailer walls which means that the pigs are exposed to airborne contaminants as well as being able to spread airborne diseases during transport. The other issue related to this method of ventilation is exposure to the elements including extreme heat and cold. Two of the most common problems identified in livestock transportation are overcrowding and frostbite. This issue points to the need for fully enclosed transport trailers where the environment of the animal compartment can be controlled and maintained within certain limits to provide a safe environment for pigs during transport. In the European Union regulations for animal transport include the requirements for fans, GPS tracking, temperature sensors and alarms and water for the animals.

Currently, the prototype trailer provides a fully enclosed environment with an air filtration system to protect the pigs from airborne diseases during transportation. The prototype trailer also features a hydraulic ramp for loading to reduce rates of injury that are often associated with the use of ramps for loading. To help to create a stable environment and reduce the stress experienced by the pigs during transport the team at Prairie Swine Centre is working to integrate the following features into the prototype transport trailer:

- Ventilation system that is independently controlled for each set of fans per deck of the trailer
- Installation of drinking and misting systems for cooling of pigs in hotter months
- Installation of an emergency hatch for temporary ventilation in case of power or system failure and also as a biosecure access for inspection of animals at border crossings
- Real-time display and data logging during transportation that can be manipulated by the driver in response to alarms:

1. Temperature
2. Relative humidity
3. Carbon dioxide
4. Air speed/flow
5. GPS tracking and monitoring