# The Effect of Transportation Dynamics on Cattle Welfare and Beef Quality

**Laura Warren**[1], *BSc;* **Ira Mandell**[2], *PhD;* **Tina Widowski**[2], *PhD;* **Ken Bateman**[1], *DVM, MSc*
[1]*Department of Population Medicine, Ontario Veterinary College, University of Guelph, Guelph, Ontario*
[2]*Department of Animal and Poultry Science, University of Guelph, Guelph, Ontario*

## Introduction

In 2006, the Ontario Cattlemen's Association invited research proposals on cattle transportation as a result of the Canadian Food Inspection Agency's review of the current legislation for livestock transportation contained within the Health of Animals Act. We describe here a benchmark study to investigate slaughter cattle transportation conditions in Canada.

## Materials and Methods

Data was collected multiple times per week over a period of 52 weeks at a large federally inspected plant in Ontario. For the first 38 of the 52 weeks, data was collected twice per week, on two of either Monday, Wednesday or Friday. The visits also alternated by time (5:30 AM-9:30 AM or 9:30 AM-1:30 PM), to ensure an accurate sampling of the entire population (long and short haul cattle). For the last 14 weeks of the 52 week study, an evening data collection period was added (6:00 PM-11:00 PM) once per week in order to collect information and maintain the representative nature of the data from long haul truckers who began bringing in several loads at night. Data collected included: length of time in transit; temperature variation; season; conditions during transport; amount and type of bedding; cattle weight; number of dark cutters; sex and whether or not sexes were separated on mixed loads; number of lots and whether or not lots were separated; cattle unloading speed; cattle handling score; number of years trucking cattle; livestock trucking training course; ventilation; number lame, dead, needing assistance, non-ambulatory; panting, and sweating. Stocking densities were calculated based on carcass weights which were converted to live-weights using a 59.6% dressing percentage (figure obtained from data collected based on groups with both live and carcass weights).

## Results

All but 0.2% of trucks arrived within the 48-hour allowable transport time and 85.3% of trucks were from within eight hours of the plant. Trucks surveyed were at or below the recommended stocking density 66% of the time. There were five non-ambulatory or dead, 79 lame, and four animals that needed assistance of the 49,959 animals observed, which translates into 0.4%, 5.0% and 0.2%, respectively, of the trucks surveyed. The incidence of dark cutters (mean = 2.0% per truckload) was highest in mixed loads, followed by heifers and steers. Mixed loads that were not separated (steers and heifers in the same compartment) had a higher incidence of dark cutters than mixed loads that were separated. The GLIMMIX procedure in SAS 9.1 is being used for the analysis of the risk factors associated with dark cutters.

## Significance

Based on these results, there are very few animal welfare concerns associated with the transportation of slaughter cattle in the population sampled. This would indicate that the industry is maintaining a high degree of animal welfare through self-regulation. The findings of this study provide valuable insight into the current state of the cattle transportation industry. Given the increased consumer demand for a high degree of animal welfare this type of research is needed for the sustainability of the beef industry.