



Livestock Transportation Conference

A report that summarizes the presentations from the American Meat Institute (AMI) Livestock Transportation Conference held on February 13, 2008 in Kansas City, MO.

Nearly 100 industry delegates attended the Livestock Transportation Conference in February, 2008 in Kansas City, MO. It was hosted by the American Meat Institute Foundation (AMIF) and the Animal Transportation Association (ATA). The conference provided the opportunity for industry to discuss the increasing focus on animal care during transportation. Speakers addressed key issues essential to strengthen animal care and handling, including driver fatigue, loading density, trailer ventilation and design, emergency programs, as well as driver and handler training.

This event brought together people and ideas from science, policy and industry to improve animal care and handling procedures during transportation. Livestock carriers, drivers, plant personnel, producers and other supply-chain stakeholders learned about the latest research in a variety of topics, industry programs that have been implemented or are under development, as well as interesting perspectives based on the experiences of the European Union.

This paper summarizes the ten presentations from the full-day program of the 2008 Livestock Transportation Conference.

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Alberta Farm Animal Care (AFAC)

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www.afac.ab.ca

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**American Meat Institute
Livestock Transportation Conference
February 13, 2008 – Kansas City, MO**

Summary of Presentations

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AMI Foundation
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Summary of Presentations

International Insights – Perspectives from the European Union (EU)

Eddie Harper, Chairman of Road Haulage Association (RHA) Livestock Transport Group and Director of Assured British Meat (ABM)

Background

- Currently there are 27 member states in the European Union¹.
- Livestock transportation in the EU is currently governed by EU Regulation 1/2005 which was implemented in January, 2007, and which has caused several problems for industry.
- Prior to EU Regulation 1/2005, member states were governed by a *directive* (91/628 EEC), which had been the law since 1991.
- Member states could adjust a directive to suit their specific needs; however, a regulation cannot be altered. Have been some problems with language translation.
- The main purpose of EU Regulation 1/2005 (on the protection of animals during transport and related operations) is to ensure the welfare of animals during transport throughout Europe.
- In addition to complying with EU regulation, transporters also have to contend with animal rights groups that are trying to stop long-distance transport. Some of the more extreme groups want all livestock transport stopped.
- Throughout the 1990s, livestock transport vehicles and transport yards were sabotaged “every day”. In addition, drivers and their families had been threatened. E. Harper has had first-hand experience with removing fire-bombs from transport trailers. Many firms in the livestock chain (transporters, sales yards, etc.) would regularly have someone else open the mail for fear of letter bombs. Hate mail was/is almost a daily occurrence. The industry reacted by continuing to work (had to), but this was seen as the reason that the industry lost many good drivers.
- Members of the European Parliament (MEP) had more mail regarding animal welfare than any other subject. Videos were sent to every MEP as well.
- Problems associated with different countries with different cultures, in particular with how animals are used. Activists knew where to go, and where to get the photographs. In particular, horse transport was made an example. As a result, horses can only be transported in groups of four.
- This resulted in legislation being passed that was not based on research and that was made by people who did not have industry-related knowledge. There is a feeling that this was caused by a minority of the industry that was not abiding by the rules.
- The Regulation now governs all 27 member states and candidate counties on entry.

Regulation 1/2005

- The regulation addresses several *perceived* areas of concern:
 - i. Authorization of transporters and vehicle standards;
 - ii. Maximum journey times for farm livestock – including feeding, watering and rest periods;
 - iii. Driver competence and assessment requirements.

Transport Authorization

- The regulation identifies who is responsible for the animals during the journey. Any person transporting animals over 65 km. (40 miles) must have an authorization. This applies to all animals – not just farm animals/livestock.
- Two types of authorization: long v. short journeys. Anything over 65 km. and up to 8 hours is a short journey; anything over 8 hours is considered a long journey.
- The distance animals can be transported depends on the standard of the vehicle.

Long Journeys

- Vehicles that are used for over 8-hour journeys, which is considered under the regulation to be a “long journey” have to meet certain specifications and be inspected to the standard developed by the home member state which meets the EU requirements (must have direct access to animals, mechanical ventilation, removable partitions, accessible water during stops).
- For long journeys, animals can only be transported when the temperature in the cargo compartment is between 5°C and 30°C (+ or - 5°).
- If the compartment temperature does not meet the targeted requirement, the trailer can be loaded but the journey cannot be started.
- Vehicles will be required to be equipped with mechanical ventilation and must have a temperature monitoring system that includes an in-cab warning device and a data recording system (on-board unit or OBU, at a cost of approximately \$1000 each). OBU must be able to record everything and data must be downloadable at the roadside for enforcement purposes.
- Satellite tracking is required on all long-distance journeys (current requirement on new vehicles; older vehicles must be retro-fitted by 2009).
- Vehicles used to transport pigs must be fitted with a drinking system allowing the pigs' continuous access to water.
- Vehicle must carry 1.5% of the payload in water (e.g. – 20 tonnes of pigs on board, need 300 liters of water).

Traveling Times

- Not enough research done on traveling times to date. Review of traveling times anticipated in 2009. Traveling times are not linked to drivers' working times. There are driving times, a working time directive, and traveling times for animals, none of which are the same – three completely different sets of rules.
- Currently travel times are only stipulated for farmed livestock (not including registered horses).
- For journeys on standard vehicles, livestock can be transported for 9 hours which is to be followed by a minimum of one-hour rest, and then can go a further maximum of 9 hours.
- Other cattle sheep and goats can go 14 hours followed by a minimum rest period of 1 hour, then a further maximum of 14 hours.
- Excluding registered horses, maximum 24 hours of travel times, with feed and water after every 8 hours, if necessary.
- Pigs can be transported for a maximum of 24 hours with continuous access to liquid, followed by 24 hours rest in a designated place – don't need to unload, except in Germany where unloading is mandatory.
- After all maximum species-specific journey times, the animals must have 24 hours rest off the vehicle and offered feed and water (applicable to livestock and non-registered horses only at this point). The rest must take place in a designated area that varies between member states (e.g. – in Germany animals must be offloaded, in Britain unloading is not required).

Enforcement

- Regulation is enforced through the use of a 5-page journey log that requires signatures of all parties involved.
- Any member state has the authority to enforce the provisions of the regulation at any point of the journey.
- GPS tracking is used as an enforcement tool.
- The vehicle must be cleaned after every load, before any other animal is loaded on it.

Training

- All persons transporting animals over 65 km. (40 miles) must hold a certificate of competence.
- The assessment and certificate must be approved by the member state, which can vary in terms of administration and resulting credentials (e.g. – UK requires 2½ hours training followed by a 27-question multiple-choice exam and 1½ hour driving test with livestock loaded, whereas in Denmark training can take 2 to 3 days in a classroom. In some member states, assessment must be done by a government vet). Every member state has to have something in place.
- All member states (except Holland) have differentiated between long and short journeys in their training and assessment programs. In Holland, the same certificate covers both long and short journeys.

Stocking Densities

- Space allowance is covered under the EU regulation on a species-specific basis.
- Industry is attempting to convince Brussels that a different regime is required for smaller animals (e.g. – weaner pigs).

Responsibility during Transport

- Responsibility during transport rests with the driver. Ultimately, the driver has final say and can refuse to load/transport animals, and is protected by regulation.
- Other parties also share responsibility: Keepers (anyone who has charge of animals before/after the journey such as staff at assembly centers, markets and abattoirs).

Other Requirements

Basic Drivers' Hours

- Drivers are regulated by maximum driving/on-duty times (as are drivers in North America).
- System is based on a fixed week.
- Maximum allowable driving time on a daily basis is 9 hours.
- Maximum allowable driving time on a weekly basis is 6 driving shifts.
- Drivers must rest for a minimum of 11 hours/day.
- Double-manned vehicles (team drivers) can be kept moving for 20 hours.
- There is also a "Working Time Directive" (WTD) which limits drivers to a maximum of 48 hours/week over an 18-week period. For livestock drivers, this includes loading, unloading, cleaning trailers, etc.

UK Transport Scheme (in addition to EU Regulations)

- In the UK, there is also a Farm Assured Transport program that is administered by Assured British Meat (ABM).
- Since 2004, it became compulsory for all livestock carriers delivering the ABM approved abattoirs to be in the ABM transport scheme.

- Under this scheme, all transporters have to submit their vehicles for inspection. If transporter arrives an abattoir with a non-approved vehicle, it will be unloaded that one time (for the welfare of the animals), but then the carrier will not be allowed to deliver there anymore.
- Abattoirs monitor animal welfare very closely. Any bruising or marks are the cause of investigation. The carrier would be checked and further deliveries would be monitored. The farmer is informed of any problems.

The Politics

- The same out-dated video footage has been used over and over again by activists, who attack politicians.
- Animals' Angels has been active since the early 1990s, and have been seeking to drastically change the way that animals are transported (if at all).
- Their cause became moot when BSE and FMD slowed and then stopped almost all commercial transport.
- Research is not always "noticed" and often legislation is based solely on politics.
- There still is not enough research into travel times, and the current rules often require animals to be unloaded in "strange places" for 24 hours regardless of the type of animal (e.g. – slaughter v. breeding). Several good wash-out facilities in continental Europe – not as many in the UK.

Take Away Message

- Industry has to take the lead and take control of its future. Don't wait for the other side to set the agenda. Animal welfare activists will not go away.
- To this end, the ELT (European Livestock Transporter Association) was recently established by industry to ensure that its voice is heard in future regulatory consultations.

Driver Fatigue Management

Jennifer Woods, J. Woods Livestock Services

Background

- Completed paper in the fall that documented 415 commercial livestock road accidents in North America.
- Information gathered from media, Google alerts, transport companies, insurance companies, livestock incident tracking program fire departments and veterinarians.
- Of 415 accidents, 56% involved cattle. Of those 56 incidents; 70% involved feeders, and 23% involved fat cattle.
- 27% of the accidents involved swine; 80% of swine incidents were market weight hogs; 16% involved weaners and 3% cull sows.
- 11% involved poultry.
- There were also accidents involving bison, horses, sheep, and goats.
- 80% of accidents were single vehicle.
- In 393 out of 415 accidents (~95%), the author was able to determine the cause of the accident. Of those, driver error was identified as the leading cause of the accidents (337 or 85%).
- Approximately 84% of vehicles involved rolled over. Of those, 208 (84%) rolled onto the right hand side, while only 38 trailers (15%) rolled to the left. One trailer landed on its roof.

- In 133 of the 225 accidents for which the time of the accident was documented, the accident occurred between midnight and 9:00 a.m. There is some speculation that this statistic should be higher given that the majority of accident information came from media reports, and that the media would not likely cover incidents occurring during this time period, particularly those that did not occur on major highways.
- October recorded the highest number of accidents (12%), followed by November (11.5%), and then August (9.8%). It was suggested that the reason that more accidents occurred during non-winter months is that during winter weather, drivers may be more cautious. The report also points to higher shipping volumes during those two months.

Driver Fatigue

- Researcher concluded that leading cause of accidents is *driver fatigue*.
- Fatigue is defined as “loss of alertness, drowsy driving, falling asleep, poor memory and irritability”. It is caused by irregular body clock schedule, lack of sleep, poor sleep, long work hours and medical problems.
- Conclusion based on number of accidents occurring between midnight and 9:00 a.m., as well as the number of single-vehicle accidents, in particular those that drift or roll to the right.
- Driver fatigue is a problem in all commodity sectors (not just livestock).
- Driver shortage is cited as a possible reason for increased driver fatigue due to the need for existing drivers to work longer hours.
- Plant scheduling is also cited as a challenge, and may lead to having drivers on the road during their most vulnerable time (1:00 a.m. to 6:00 a.m.) to accommodate early morning slaughter schedules.
- Weather conditions are a significant issue for swine in particular with loads moving at night to avoid the extreme heat/humidity during the day.
- Relocation issues (distance that animals travel now to final destination) also cited as a challenge.
- Many accidents occurred close to home during shorter hauls as opposed to longer hauls.
- Even regular night shift workers/drivers get on average 2 hours less sleep per day than day workers because the body naturally wants to rest during the night.
- Young males between 16 and 29 years of age are at highest risk (Expert Panel on Driver Fatigue and Sleepiness, 1997).

Signs of and Managing Fatigue

- Signs of fatigue include: cannot keep head up (bobbing head), eyes won't stay open or goes out of focus, drift over centre line or onto shoulder, thoughts begin to wander, miss road signs/exits/shifting gear, reflexes slow, and driver becomes highly reactive.
- Only cure for fatigue is sleep.
- Experts recommend a minimum of 7½ hours/day of sleep (for a healthy individual).
- Sleep dept carries over – need to make up for lost sleep the following night.
- Need a good sleep environment at home (quiet, dark, etc.).
- Maintain a consistent sleep schedule, even on days off.
- Eat balanced meals and have regular medical check-ups.
- If driver experiences fatigue during driving, he/she should pull over and contact dispatch; stop and stretch for 5 minutes, check vehicle, check load (animals); do not take over-the-counter stimulants; keep cab comfortable.

- Some companies have introduced new position: *fatigue manager*. Hogan Transport has reduced number of livestock accidents by hiring a fatigue manager, who works the night shift with the drivers, and checks the drivers before they leave the yard.

Other Contributing Factors to Accidents

- Pot belly trailers roll over more than straight trailers; likely because there are more loads moved in pot belly trailers and not necessarily because straight trailers are more stable.
- A study conducted by Wilson Trailers to test stability of pot-belly trailers concluded that a trailer loaded with fat cattle had a 5° point of no return (when the trailer hits 5° tilt, it could not recover).
- More research on trailer design and stability required.
- The type of animal being transported may be a contributing factor. Cattle have higher centre of gravity whereas pigs are lower to the ground.
- Research suggests that pot belly trailers hauling pigs may be more stable due to the increased weight in the pot (low centre of gravity).
- Load distribution may be a factor.
- Drivers of turkey loads need extra training (as much as 2 extra weeks) to learn how to maneuver a trailer when only one side is loaded (due to loading procedures).
- Load shifting not a plausible cause of accident. Load does not shift ahead of time.
- Less than ideal road conditions (narrow roads, soft shoulders).
- Several trailers roll when they come from narrow driveways to narrow roads (often not reported and not part of research).
- Speed of vehicle is a contributing factor, particularly on highway on and off ramps.

Whose Problem is this?

- Industry problem – not just trucking problem.
- Must work with drivers (and other supply-chain stakeholders) to better manage driver fatigue.
- Need to pay attention to the plight of livestock transporters right now, who are under a great deal of pressure, with little reward and have to deal with a “whole lot of crap”.
- WSPA and HSUS have set sights on transporters for publicity campaigns.
- Those who control transport, control the industry.
- Livestock transporters need to be better organized – need better representation.
- Non-transport related stakeholders cannot continue to avoid responsibility for transportation.
- Need more places for trucks to stop for rest periods.

Developing a National Emergency Program

Sherrie Niekamp, National Pork Board

Emergencies in Pig disasters

- Include natural disasters, power outages, disease outbreaks and truck roll-overs.

Truck Roll-overs

- Lawsuits have been initiated by PETA to have authorities press charges against pork producers for cruelty to animals.
- Media is largely negative when truck roll-overs occur. Quote from Las Vegas Review Journal from story that covered roll-over of vehicle that was transporting pigs: *"The trailer lurched as the tow trucks pulled it over the crushed guardrail and onto the pavement, breaking the legs of several animals. The pigs' dirty, bloodstained faces watched officials and shrieked as their limbs, caught in the holes on the side of the trailer, were crushed."*
- Unwanted or uneducated help which includes emergency first responders (e.g. – volunteer fire department), passersby with good intentions, animal advocacy groups (e.g. – HSUS, which has employed a network of state directors to establish and building professional working relationships with government agencies/implement disaster plan/plan and coordinate emergency and disaster response teams; PETA has response teams; state humane organizations are sometimes official state responder) can make the situation worse.

Successful Disaster Recovery: Prevention

- NPB has TQA (Transport Quality Assurance) program which provides training for drivers in truck maintenance, driver fatigue, importance of having contact information (emergency response), and vehicle speed management.
- Contemplating developing a Reporting Database so that when accidents do happen, they are entered in the database so that NPB can learn more about the incidences, identify opportunities for education, and provide feedback on trailer design.
- Hurdles currently include ensuring participation from industry as well as developing the right questions to ask.

Successful Disaster Recovery: Preparation

- Covered in Driver TQA program: If uninjured, driver should call appropriate contacts; set up cones, flares, etc.; contain animals; follow established post-accident procedures including pictures and documentation; information control (knowing what to say and to whom).
- Once first responders arrive, they then take control.
- First responders need to know how to handle live animals, how to euthanize compromised animals as well as how to and when to extract animals.

National Emergency Program

- National program too ambitious to tackle from the beginning. Initial focus will be in the Midwest where Iowa and the surrounding area kill 60% of the total national slaughter.
- Iowa imported nearly 20,000,000 feed pigs in 2006.

First Responder Training

- First responder training is first step in national emergency program.
- NPB spoke to state fire schools, state policy academy to determine interests and needs.
- First responders indicated that training should not be species specific – would like training that would cover a variety of species so trainees would only have to attend one session.

First Responder Audiences

- Dispatchers: (general knowledge of transport, incident assessment, resources).
- Police: (animal behaviour and handling, euthanasia).
- Fire: (animal behaviour and handling, extraction).
- Emergency Management Coordinator (EMC): (resources).
- All: (general knowledge on the transport of animals).
- For implementation, need to identify key learning objectives, identify appropriate materials, work with other species groups, and deliver on a national level.

Successful Disaster Recovery: Response

- Rapid and effective response must take into consideration: human safety, animal well-being, public relations, business continuity, and economics.

Emergency Response Network

- Looking to create an emergency response network that is developed, implemented and managed by industry (Murphy Brown and Cargill provide models of emergency response networks).
- The challenge is to create a national network that includes everyone.
- Network will include: identifying ideal locations for placement of response kits, training response teams, 1-800 hotline (all species); informing emergency first responders that kits exist.
- Roundtable held last month (producers, transporters, insurers). Next step is to identify locations.
- Need to better understand liability associated with the safety of responders, as well as liability associated with euthanasia decisions.
- NPB will need help from industry and state associations and producers in determining where kits are located, communicating with emergency first responders, and addressing the media.

Future Possibilities of the Network

- Disease Outbreaks – Potential opportunity for network to respond (e.g. – euthanasia).
- Natural disaster rescue/recovery.
- Other emergencies involving swine.

Next Steps

- Producer/Driver & First Responder Awareness.
- Development of training material for first responders.
- Development of a response network.

International Insights – Perspectives from Canada

Martin Appelt, Ph.D., DVM, Canadian Food Inspection Agency

Who is CFIA?

- Canadian Food Inspection Agency – delivers 14 inspection programs related to foods, plants and animals in 18 regions across Canada.
- Enforces food safety and nutritional quality standards and sets and enforces standards for animal health and plant protection.

- Employs ~600 veterinarians.

The Canadian Government Role in Animal Transportation

- Health of Animals Regulations (since 1970s), which cover all animals including livestock, in all modes of transport anywhere, anytime.
- Regulatory review underway – started in 1990s.
- Canadians do not support a pure “education, don’t regulate” approach for animal transport. Review highlighted that there is a continuing need for the government to play a role in animal transportation.
- Care for animals regulated under the Criminal Code of Canada (cruelty to animals), the Health of Animals Act and Regulations (includes animal transportation), and provincial statutes, all of which codify the right of animals to be treated humanely and identify responsibility for them.

Animal Transportation Regulations

- Current regulations have “outcome-based” elements, which explain the desired (or undesired) outcome and leaves it to the regulated party on how to achieve it.
- Government works with commodity groups, industry and other stakeholders on the development of industry-led standards (e.g. – Code of Practice for the Transportation of Animals – 2001) which are voluntary. In addition a livestock transporter (driver) training program has been developed, and decision trees and information booklets have been developed under an industry-government cooperative approach (but typically led by industry).
- Industry has typically defended its practices by saying that treating animals humanely is in the best interest of the industry. Vast majority of carriers are doing a good job. Only 5 – 10% of transporters do not have acceptable standards, and they make it more difficult for everyone else.
- Government’s role is to level the playing field so that good transporters are not disadvantaged when competitors cut corners and get away with it.
- Industry’s argument that cost is prohibitive is unacceptable. Industry must demonstrate its commitment to the public. Just because the majority has been doing something a certain way for a very long time, it does not necessarily make it right.
- Canada can learn from the experiences in Europe where industry in general and the livestock transportation industry specifically took the “brown paper bag approach” – in case of a problem, put a brown paper bag over your head and wait for the problem to go away. Meanwhile, activists were talking to those in power and supplying material. The result is that regulations were made based more on attitude and perception than science, or even the needs of the animals.
- North America is not immune to having the same thing happen here. Case in point: the horse slaughter ban in the U.S. is the first time ever that slaughter of a food/livestock animal has been outlawed for reasons other than animal health or food safety.
- Industry needs to stand up for itself, speak to the people in power, and not leave it to activists to influence laws that affect industry.
- From a regulatory perspective, government oversight is required to protect animals of low individual value (primary source of concern).
- How can industry explain to the public that it can build a business case around the scenario of “it’s ok if a few don’t make it”? If the market does not punish bad animal welfare practices, does it mean that animal welfare is worthless? More to animal welfare than the bottom line.
- Transporters do not have to “go for gold”, but to say that there are no improvements that can be implemented is unacceptable. Need to conduct research into what is taking place elsewhere in the world in the area of animal transport.

- Canada is not going for “regulatory gold”. Government needs to determine what the lowest acceptable standard is using a cooperative approach.

Cooperative Approach

- CFIA found that the only way to succeed is through a cooperative approach.
- Regulations do not fix any particular problem. Regulations are usually the result of real or perceived problems.
- Regulations set minimum acceptable standards – does not in any way reflect “best practices”.
- For example, what is the minimum standard for feed, water & rest or even loading densities? CFIA is trying to get away from defining set limits for time in-transit. As long as animals are provided with what they need, and do not arrive at destination under stress, then transporter must be doing something right.
- Adamant about “making life difficult for those who try to take short-cuts”. CFIA will inspect animals in trucks at some point (border, sale yard, plant, and/or roadside). Inspectors told don’t assume that there is anything wrong if you can’t see anything wrong. If everything appears to be in order and documentation in order, then on the truck goes. Not in the business of needlessly delaying vehicles in transit.
- Any one “single-armed” approach (either government or industry), it will not work; a cooperative approach is required that combines industry-led initiatives (such as best practices) and regulatory authority.

Enforcement

- Enforcement at multiple locations: some expected, some unexpected.
- Graduated enforcement: education, warning, monetary penalty (administrative), prosecution in a court of law
- Focus on non-compliance that actually causes harm (as opposed to jumping on technicalities). Significantly differs in approach from EU.

Further References

- National Farm Animal Care Council (NFACC) (www.nfacc.ca)
- Alberta Farm Animal Care (AFAC) (www.afac.ab.ca/careinfo/transport)
- Ontario Farm Animal Care Council (OFAC) (www.ofac.org)
- Canadian Food inspection Agency (CFIA) (www.inspection.gc.ca/english/animal/heasan/transport/indexe.shtml)

Loading Density

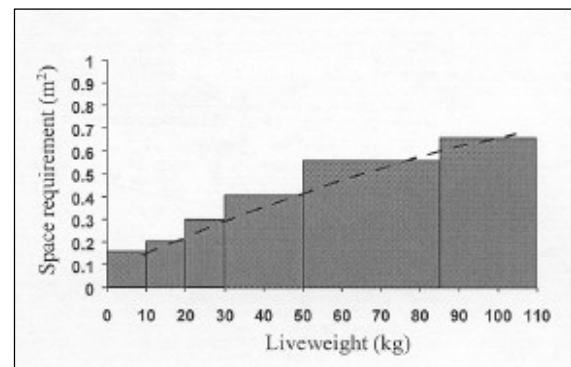
Terry Whiting, Ph.D., Manitoba Agriculture Food and Rural Initiatives

- When speaking about loading densities, it is easy to lose meaning in translation. Current ways of relating maximum capacities relies on user’s ability to “speak math”, and not all can.
- There is a presumption that overloading is a cause of poor animal welfare.
- Laws have been written to prescribe maximum crowding during transit in several jurisdictions.
- In Canada, codes of practice make recommendations regarding maximum capacities.
- Codes of practice rely on tables that recommend allowable space per animal; presented in tabular format. Speaker refers to density tables as “crap”, and questions why any government would allow such a presentation of information in any publication.
- Crowding in transit adversely effects livestock, as measured by cortisol levels, bruise score, frequency of struggling to maintain footing, and number of falls.

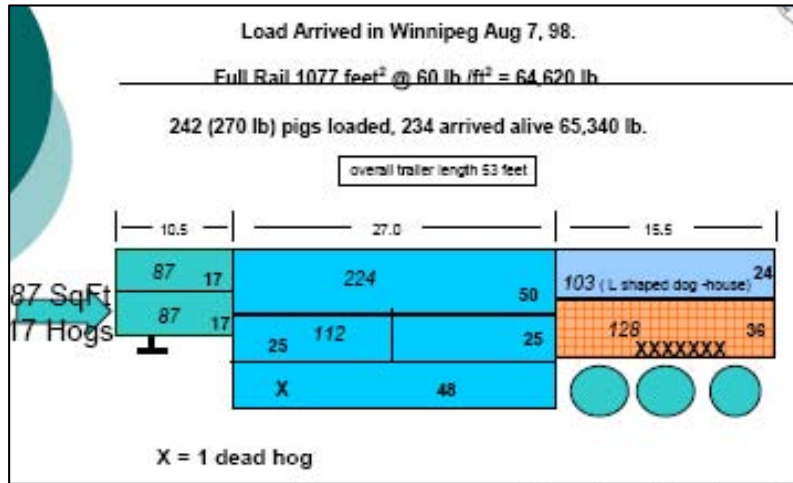
- The ability of livestock to change position within the group decreases with increased crowding and may prevent livestock from facing the preferred direction during transport.
- The behavioral response of livestock to serious overcrowding has been well described.
- When critical overcrowding occurs, individual animals become recumbent on the vehicle floor and struggle or are unable to regain their footing without the removal of some of the group. This has been described for cattle and horses.
- The situation has been described as going down underfoot, closing over, or involuntary recumbency.
- The *domino effect*, where an involuntary recumbent individual destabilizes the footing of standing compartment mates, has also been described for cattle.

Communicating Loading Densities

- Need to talk about how to describe crowding in transport, how it can be done, and what has worked in the past.
- Describing minimum space allowance requirements for cattle in transit has proven to be difficult, as the space required increases as the animal grows.
- Loading pressure, defined as weight of live animal per unit area, has proven to be a clear method of communicating with transporters and inspection staff what the maximum safe stocking limit is based on individual animal weight.
- Research has indicated that as animals increase in size, their weight increases as a function of their length-cubed (L^3), while the floor space they require increases as their length squared (L^2).
- When calculating loading densities, it is natural for the transporter to think of mass/area (lbs/sq. foot), whereas loading densities have been described by governments in terms of metres² per 100 kg, which is a standardized inverse of weight/area, which is more difficult for users to understand.
- Often industry implements density standards that are later supported by research. In other words, industry can often “figure it out” on their own.
- The diagram on the right describes the weight range and space allowance required by the EU directive controlling method of production of swine in confinement (top of the solid bars).
- The bars are an administrative approximation (written into law) of the scientific recommendation which is the dashed line.
- A problem may arise when written regulations use a *stair step* approach in relation to space allowances.
- Enforcement may actually be more difficult if the judiciary perceives that, at least some aspect of the application of the law is senseless; for example where a small increase in body weight requires a disproportionate increase in space allowance.
- Stair Step approach likely not enforceable in Canada.
- Errors in loading are often made with smaller calves and young horses when the trucker is attempts to load a “truck full” based on total loaded weight.
- Many loading density charts are based on historical data (e.g. – data collected from like loads such as PMU foals) over a period of time, as opposed to definitive research directly linked to animal welfare.



- Need to communicate loading densities to users in a language/format that they understand.
- When transporting hogs, a sound mathematical equation to use is: 60 lbs/ft².



- Example on left (true story) shows the number of pigs/compartment. Most compartments are loaded to the 60 lbs/ft² guideline, with the exception of the rear bottom compartment which was loaded at nearly 76 lbs/ft² and where 7 hogs died.
- Coincidentally (or not), when the 7 deads are removed, the density goes back down to around 60 lbs/ft² (which, according to Dr. Whiting, proves that pigs can do math).

- Similar example also provided for foals for which the recommended maximum loading *pressure* is 55 lbs/ft².
- It is not good enough to provide loading maximums on a per-trailer basis (e.g. – 220 hogs/53' trailer). Maximum load needs to be calculated on a compartment by compartment basis.
- Speaker believes that pressure per area (e.g. – lbs/ft²) is easier to work with.
- Transporters have indicated that they tend to think more in terms of linear foot, rather than square footage.
- Consequently, when you take the 60 lbs/ft² guideline for pigs, and calculate for a standard width trailer (8.3 ft. internal width), you can use 500 lbs/linear foot (running foot of deck) as a loading guideline.

Conclusions

- Publish standards that can be objectively evaluated.
- The use of stair step recommendations should be discouraged in law and in codes.
- In application, when describing minimal space allowance for animals in transit, graphical recommendations based on maximal floor pressure (mass/area) for all weights in the range are a useful way of thinking about stocking density.

Ventilation in Trailers

Eddie Harper, Chairman of Road Haulage Association (RHA) Livestock Transport Group and Director of Assured British Meat (ABM)

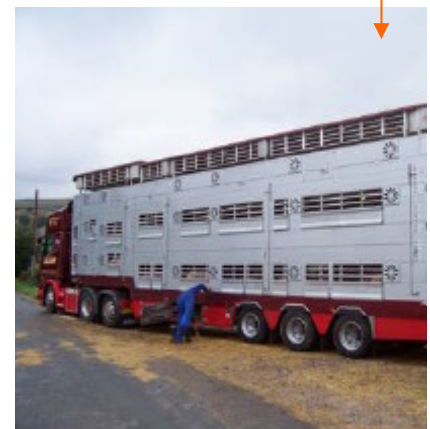
- Research underway in Europe on ventilation of livestock trailers by Peter Kettlewell of ADAS and Malcolm Mitchell.

Ventilation

- Ventilation is an important welfare consideration, since one of the major causes of stress during transport is the thermal environment.
- Conditions inside the vehicle can be very different from those outside the vehicle.
- Animals generate heat AND moisture.
- Ventilation is the best method of removing heat and moisture from the container.
- Animals can lose sensible (dry) heat and latent (wet) heat.
- Sensible heat loss needs a temperature gradient between the animal and its surroundings.
- Latent heat loss requires a moisture gradient between the animals “wet surfaces” (skin, respiratory tract) and its surroundings.



Recent Innovations in Ventilation



Air Movement

- For air to move, it needs a difference in pressure.
- Stationary vehicle - still conditions – little air movement.
- Moving vehicle - motion produces pressure differences/air movement.
- Natural Ventilation: on a moving vehicle, air flows out at the front and in at the rear.
- There is little control over natural ventilation. It is dependant on external conditions and/or vehicle movement. It may be insufficient in hot weather, and excessive in cold weather.
- Compartment behind the driver is the hottest spot in the vehicle.
- It is difficult to predict internal airflow patterns in some vehicles – particularly the typical pot-belly trailer used in North America.



Fan Ventilation

- Fan ventilation allows for total control which is independent of external conditions and/or vehicle movement.
- It can be adjusted to suit the needs of the animals and allows for appropriate ventilation for the prevailing weather conditions.
- Fans are fitted to vehicles, and are generally better at extracting air from the container rather than pumping it in.

- Has been determined that it is better to mount extraction fans at regions of low pressure.
- The research vehicle on the right has been found to be the best way to transport livestock. By opening just the back flaps, the air circulates through the vehicle in a good way. Once flaps are opened anywhere half-way along the vehicle, the object is defeated.
- Fans on the research vehicle are located at the front – 2 per deck (2 each side). Sensors and computers are located in the centre–front.
- EU Regulation 1/2005 has a specific ventilation requirement. Need to have 600m³/hour/tonne going through the vehicle.
- The EU regulation demands that all vehicles on long journeys must be able to maintain the temperature in the animals' compartment between 0° and 30°C; Fans must be able to do that.
- Specific temperature ranges have been developed under EU rules for pigs, sheep and cattle. For example, 20 tonnes of pigs require approximately 12 fans.
- Trailers are inspected to make sure that they are equipped with adequate ventilation. Fans have plates that show their rating, which is what is used for roadside enforcement.
- Challenge is to ensure that fan is protected on both sides to avoid injury to people or animals.
- Temperature monitoring systems are mandatory, and must include in-cab warning as well as data recording capability.
- A driver could be asked during a roadside inspection to print out a journey log which will show the recorded trailer temperatures for the journey.
- If the vehicle breaks down, the vehicle needs to have some kind of back-up power to ensure that the fans can continue to operate for a minimum of 4 hours. At the moment, there is no realistic way of doing this.
- To retrofit a vehicle with fans, it would cost around US\$1000 each. New vehicles come with fans at the cost of about £100,000.
- Internal sprinkler systems on trailers are seen as one of the worst things that you can do because they cause too much humidity, which will kill animals sooner than heat alone.



Fans are located in the front of the vehicle, as well as in the doors that divide the front and middle compartments.

Ongoing Research

- Research is on-going on long-distance transport for movements of assorted breeds of cattle traveling from Ireland to Spain (2000 km., total time of 80 hours including 24 hours mandated rest with animals off-loaded).
- For a 24-hour ferry crossing, vehicle is plugged into the ferry's power to keep fans working. Data demonstrates that the deck where the fans are not turned on has a higher average temperature than the deck on which the fans were working.
- Results demonstrate how the vehicle operator has control of the trailer internal temperature with the use of fans.
- UK's Department of Environment, Farming and Rural Activities (DEFRA) includes a commitment to ensuring high standards of animal health and welfare in its policy statement.
- DEFRA is currently funding a research initiative using breeder pigs.
- The purpose of the research is to characterize the welfare consequences of long journeys, to define the acceptable ranges and limits for thermal conditions, and to provide sound scientific basis for future welfare legislation.
- The journey being used as part of the research will originate in Edinburgh, Scotland and finish in southern Spain.
- Journey usually loads on a Wednesday morning, and arrives at final destination the following Saturday at 3:00 p.m. Afternoon arrival time is intentional to see how the pigs handle the heat.
- Last journey the trucked arrived in southern Spain in temperatures of 42°C. Information indicates that there is a problem, though where it starts is under investigation. Previous runs arriving in 34 to 35°C did not present any problems. Research has been halted due to FMD.

Trailer Design and Transport Losses

Matt Ritter, Ph.D., Elanco Animal Health

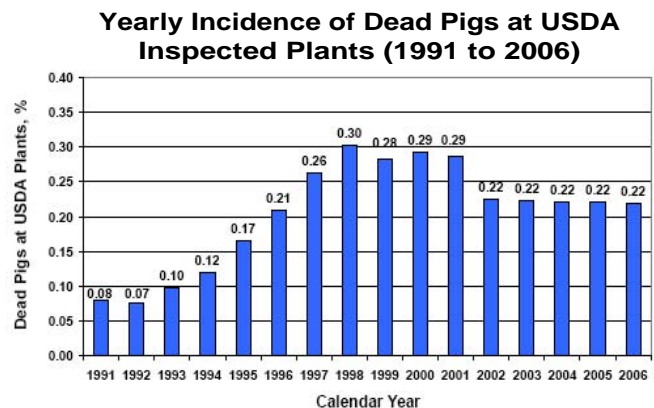
- Research commenced by ELANCO Animal Health and University of Illinois to study the *Effects of Season and Trailer Design on Transport Losses in Market Weight Pigs*.

Defining Transport Losses

- Dead on Arrival (DOA) – A pig that dies during transport.
- Non-Ambulatory Pig – A pig that is unable to move or keep up with contemporaries as well as downers, subjects, slows, suspects, cripples, stressors, fatigued, injured.
- Transport Losses – The sum of dead and non-ambulatory pigs at the plant.

Background and Literature Review

- Chart on right summarizes the incidence of dead pigs arriving at federal plants.
- Early 1990s shows low loss ratios. From 1992 to 1998 losses tripled.
- Several changes in production practices happened around that time:
 - Started to select for leaner and heavier muscled animals;
 - Increase in slaughter weights;
 - More industry expansion and consolidation, which lead to larger finishing facilities and more direct deliveries to plants on semi-trailers.



- Statistics may be misleading. Definition of a dead pig has changed over 5 years. In situations when animals are euthanized upon or post-arrival at plant, the loss is recorded as a DOA.
- Data for non-ambulatory pigs arriving at plants is not kept; therefore field studies must be relied on. The chart on the right indicates that on average, one pig/load dies or becomes non-ambulatory at the plant.
- Seasonal variations in the Midwest suggest that the number of DOAs peaks in July and August (as expected); however, the number of non-ambulatory hogs starts to increase in September and peaks in November. In the production system reviewed, losses (DOA and non-ambulatory) were highest in the late fall/early winter.
- Trailer design has important implications for environmental conditions inside the trailer, ease of handling pigs, injuries and bruising, and transport losses.
- Components of trailer design include:
 - i. Trailer type (pot-belly, straight deck);
 - ii. Number of decks (2 or 3);
 - iii. Nose vents;
 - iv. Side Vents (punched v. slat);
 - v. Internal ramps (yes v. no; ramp angle; ascend v. descend).
- Survey data suggests that pot-belly trailers have 5% higher transport losses than straight decks. However, trailer design may be confounded with driver, farm, length of journey, and transport floor space.
- Farm and driver are the two largest sources of variation in transport losses.

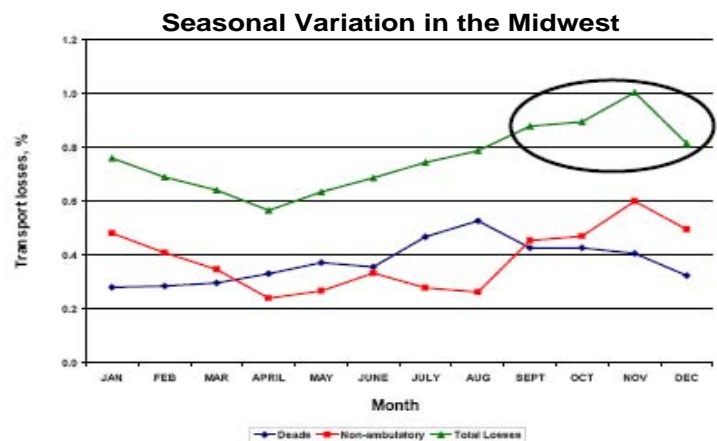
Non-Ambulatory Pigs at the Plant

A summary of 22 commercial field trials (2000-2007)

- 4,607,567 market weight pigs
- 27,240 trailer loads of pigs

Plant Losses	Mean	Minimum	Maximum
Deaths, %	0.25	0.00	0.77
Non-ambulatory, %	0.37	0.11	2.34
Total losses, %	0.62	0.14	2.39

~1 pig per load dies or becomes non-ambulatory at the plant

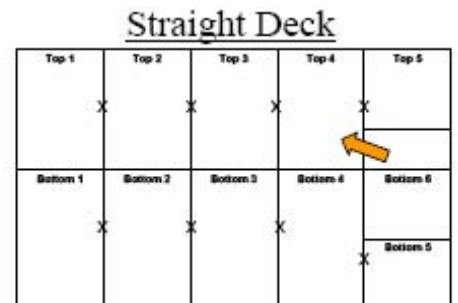
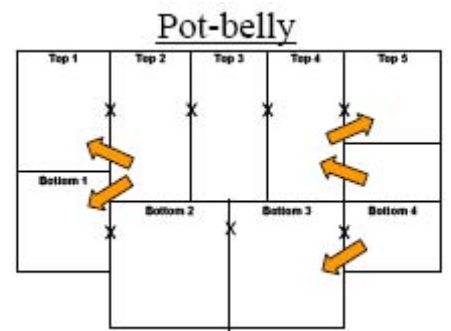


Controlled Study on Trailer Design and Season

- The study was funded by the National Pork Board checkoff.
- Objectives: to determine the effects of trailer design and season on physical indicators of stress (during loading and unloading), transport losses at the plant, and carcass trim loss.

Experimental Design

- Both trailer designs were double deck, aluminum; punched sided trailers manufactured by Wilson Trailers (refer to diagrams on right).
- 109 trailer loads of 17,256 market weight hogs (~286 lbs. average weight) from one commercial farm were used in a randomized complete block design with a 2 X 4 factorial arrangement of treatments utilizing 1) trailer design (pot-belly v. straight deck); and 2) season (spring v. summer v. fall v. winter).



← Designates an internal loading ramp
 "X" Designates location of temperature and RH sensors

Seasons Evaluated

- Pigs were loaded on 28 days over all 4 seasons with pigs being transported on 7 days/season.

Handling at the Farm

- 2 pot-belly and 2 straight deck trailers were loaded in random order on each day (Monday @ 1:00 a.m.).
- Pigs were loaded by University of Illinois personnel.
- Sorting boards were used, and electric prods only if necessary.
- Pigs were mixed on the trailer and were provided with ~4.8 ft²/pig on the trailer.
- One handler was used at the farm to load all 4 trailers.

Handling at the Plant

- Pigs were transported ~4 hours to a commercial plant.
- One handler was used at the plant to unload all 4 trailers.
- Packing plant employees identified dead and non-ambulatory pigs up to the weigh scale.

Measurements

- Trailer temperature and relative humidity by event (loading, waiting at farm, transport, waiting at plant, and unloading).
- Physical signs of stress during loading and unloading (open-mouth breathing/panting, skin discoloration, and muscle tremors).
- Electric prod use during unloading (Recorded as “yes” or “no” by compartment, but not by number of times or number of pigs).
- Transport losses at the plant (Dead on arrival and non-ambulatory pigs).

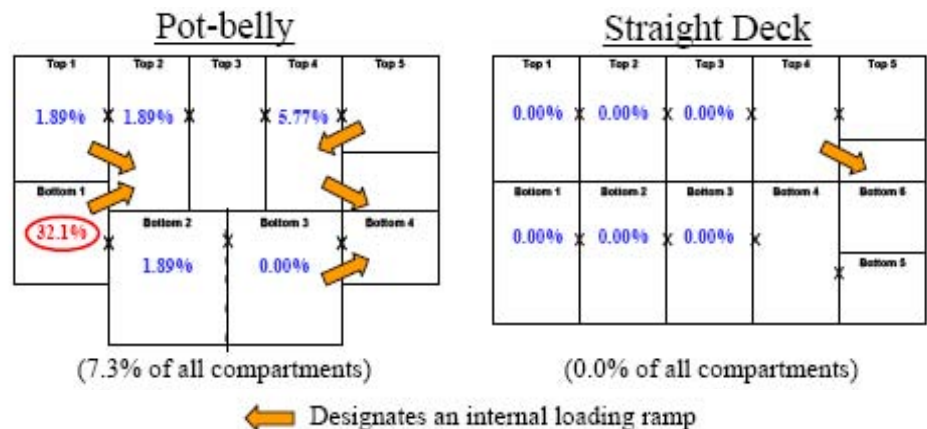
Event Times

Event times, min	Trailer Design	
	Pot-belly	Straight Deck
Loading	68.9	63.7
Waiting at farm	11.7	11.9
Transport	234.1	242.4
Waiting at plant	18.8	17.1
Unloading	35.8	20.2
Total time	364.6	355.3

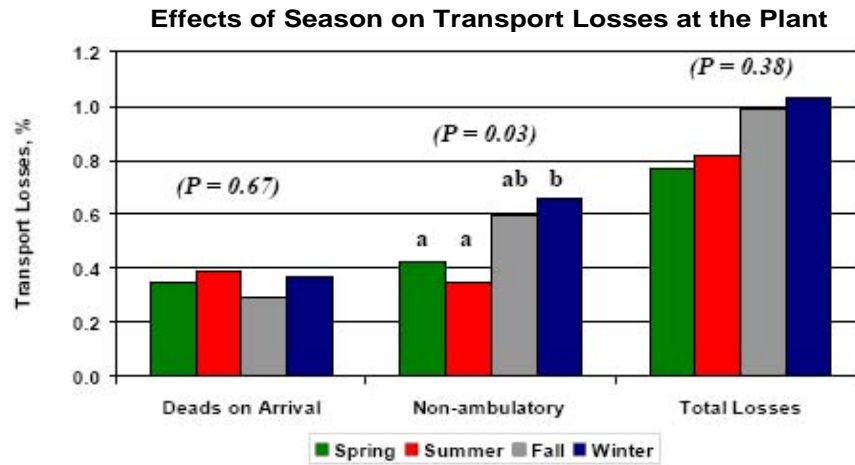
- Carcass trim-loss (Percentage of carcasses requiring trim).
- Event Times were recorded. See chart at right for averages.
- Conditions inside the trailer were also recorded. While the average temperature was lower in the pot-belly trailer, it recorded a higher relative humidity (consistent for all four seasons).

Electric Prod Use during Unloading

- The use of electric prods was recorded. They were used only as a last resort by the plant truck monitor, and were recorded as a “yes” or “no” by trailer compartment. The use of the prod was significantly higher in the pot-belly trailers. Refer to diagrams on right.



- In terms of the effects of trailer design on physical signs of stress during unloading, pigs transported in pot-belly trailers exhibited a higher incidence of open-mouth breathing (3.97% v. 1.55%), skin discoloration (10.77% v. 5.85%), and muscle tremors (0.22% v. 0.13%). Pot-belly trailers recorded more signs of pig stress in all four seasons, though the variance between the two trailer designs varied between seasons.
- In terms of the effects of trailer design on transport losses at the plant, there was no difference between the pot-belly trailers and the straight deck trailers for DOAs (0.35% for each). More non-ambulatory hogs arrived in pot belly trailers (0.57% v. 0.46%) than on straight decks.
- In terms of the effects of trailer design on carcass trim-loss at the plant, carcasses from hogs arriving on straight decks required more trim (7.29% v. 6.72%).
- In terms of seasonal measurements, total losses were higher during the fall and winter, a finding which is consistent with data collected as part of the literature review. DOAs were highest in summer; however, DOAs in winter came in as a close second. Again, consistent with the literature review, non-ambulatory pigs recorded at plant were highest in winter, followed by fall (refer to chart on right).



Summary of Controlled Study

- Trailer temperature and relative humidity: Straight decks had higher temperatures and lower Relative Humidity than pot-belly trailers.
- Handling characteristics: Pot-belly trailers required more time to unload and more electric prod use.
- Physical signs of stress: Pot-belly trailers had more open-mouth breathing and skin discoloration during unloading.
- Transport losses and carcass trim loss: 1) No effects of trailer design on transport losses or carcass trim loss; and 2) Non-ambulatory rate was higher in winter than spring and summer.

Overall Summary

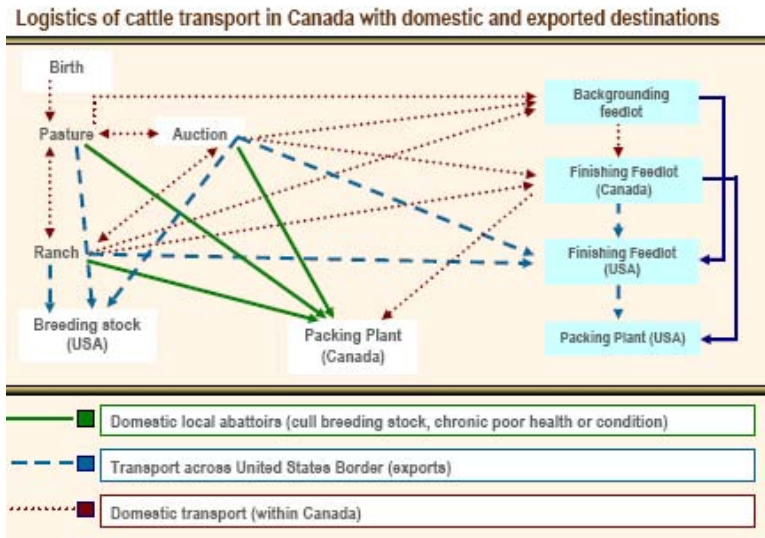
- Trailer Design:
 - No effects of trailer design on transport losses when handling and transport floor space were standardized across trailers;
 - People handling the pigs have the greatest influence. You can put the best driver on the worst trailer, and he'll find a way to make it work; you can put an inexperienced driver on the best trailer, and he'll likely have some losses. Driver/handler effect is larger than the trailer effect.
- Season:
 - In the Midwest, the rate of non-ambulatory pigs increases during late fall and early winter time period.
 - Additional research is necessary to understand why.

Beef Transport Benchmarking Study

Karen Schwartzkopf-Genswein, Ph.D., Agriculture and Agri-Food Canada

Background

- Cattle are typically transported between 3 and 7 times during their lifetime (see flowchart at right).
- 70% of Canadian cattle are raised in, and therefore originate in the province of Alberta.
- CFIA announcement to update animal transport rules was one factor in leading to this study.
- CFIA had been proposing reducing feed water and rest intervals as well as reducing loading density.
- Industry wants outcome-based regulations, and wants regulation to use codes of practice.
- There are no Canadian or even North American studies that compare the effects of loading densities with animal health and welfare.
- There are no Canadian studies on appropriate rest/food/water intervals. There are several from other countries, but none utilizing the Canadian operating environment.
- Alberta Beef Producers (ABP) indicated that they wanted to start with a benchmark study to document what is happening in the industry already (e.g. – average length of journey).
- Funded jointly by ABP, Alberta Livestock Industry Development Fund, AFAC, and Agriculture and Agri-food Canada.



Purpose of Study

- No documentation regarding standard industry practices.
- Provide a snapshot of the norms and extremes in current industry transport practices.
- Aid in defining current practice as well as identifying areas where research may be required.
- Aid in the ability for industry to play an active role in developing standards for livestock transport.

Study Plan

- 2 year study commencing April 1, 2007.
- Goal is to collect data on all transported cattle considered for beef production originating from or shipped to Alberta through the use of confidential surveys.
- Voluntary participation of trucking companies required.

The Survey

- The survey asks for information regarding the equipment, split loads, dog-house "L", reason for delays, unloading (no scale weights), downers and deads.
- There is a long-haul survey for moves over 250 miles, and a short-haul survey for shorter journeys.

- All trailers in the survey are measured by the study team on a compartment by compartment basis, and then entered into a data base so that carrying capacity is accurately collected.
- Surveys are used to answer the following questions:
 - i. Average, minimum and maximum load size in relation to loading densities, transport distances, and feed, water and rest intervals;
 - ii. The incidence of down, injured and dead animals.
- The answers will be used to determine if there is a relationship between truck type, driver experience, breed sex, age and weight class of animals, the weather as well as the use of bedding and/or boarding.

Industry Participation in Study

- 24 companies utilizing 300 trailers are assisting with completing the surveys (2 from Northern Alberta, 3 from Central Alberta, and 19 companies from Southern Alberta).

Survey Response to Date (as of January 1, 2008)

- 4985 surveys collected representing 15 trucking companies.
- 1100 are currently out but not collected.
- Total surveys: 6095 (3109 Long-haul; 2986 Short-haul).
- 1015.8 surveys/ month.
- 10 months of data collection left (to November 2008).

Preliminary Results

- Only about 1,210 surveys entered in the data base so far (all long-haul).
- 55,633 cattle at an average weight of 1,387.2 lbs.
- Average number of cattle per trailer = 46.7.
- Average distance traveled per journey = 737 miles. Minimum distance was 249 miles, and the maximum distance was 1,460 miles.
- All loads were loaded to axle/allowable weight limits, and consequently, likely over the recommended loading densities contained in the code of practice.
- 98.6% of cattle were commercial. 46.5% were fat steers and 28.7% were fat heifers headed for slaughter. Feeder steers and heifers accounted for 17.3% combined. Yearlings, cows and bulls accounted for 2.4% combined.
- The vast majority of cattle were transported from a feed yard (96.8%), and the vast majority of cattle were transported to slaughter (83%). Refer to chart at right.
- 46.3% of the drivers in the study have less than 2 years experience; 15.4% have 3 to 5 years of driving experience (not necessarily related to livestock driving (?)).
- Entered data so far has resulted in recording 9 dead cattle, 10 downer cattle, and 17 lame cattle.

Where Cattle are Transported To/From		
Location	# Cattle	As a %
From Auction	11	0.9%
From Feed yard	1,161	96.8%
From Ranch	27	2.3%
To Auction	4	0.3%
To Feed yard	198	16.5%
To Ranch	2	0.2%
To Slaughter	996	83.0%

- 85% of all the delays were at border crossings. The minimum time it took to cross the border was 8 minutes, and the maximum delay time at the border was 14.5 hours.
- 52% of all delays occurred during unloading. Refer to chart at right.
- Drivers were asked to record minimum and maximum external temperatures for each load. The minimum temperatures ranged from -7.6°F to 93.2°F or -22°C to 34°C (not on the same load). The maximum temperatures ranged from 6.8°F to 114.8°F or -14°C to 46°C (again, not for the same load).
- The purpose of the temperature data collection is to obtain a better understanding of the temperature ranges that the cattle have to endure.
- Cull dairy cows, spent beef cows are not included in preliminary survey results likely because only long-haul surveys have been entered so far.

Delays				
Type	Mean Time (h)	SD	Min	Max
Border Crossing	1.6 (85)	2.2	0.08	14.5
Unload	0.9 (52)	1.2	0.05	12.4
Driver Rest	4.1 (29)	3.9	0.08	14.0
Mechanical	1.2 (2.4)	.8	0.15	4.0
Traffic	0.9 (3.6)	.6	0.16	2.0
Weather	1.1 (.6)	.7	0.25	2.0
Other	3.3 (7.2)	3.8	0.08	12.0
Total	3.4	3.6	0	18.3

Other Areas of Interest

- Research project provides first glimpse of areas to further study such as the relationship between animal health and well-being, performance and meat quality with respect to:
 - i. Loading density;
 - ii. Feed water and rest intervals;
 - iii. Transit distance;
 - iv. Internal trailer environment;
 - v. Trailer design and features.

Update: TQA – Train the Trainer

Eric Risa, National Pork Board

Background

- National Pork Board (NPB) funded by US Pork checkoff equivalent to 40¢/\$100 of market hogs sold, which goes into a collective pool to fund marketing, research and education.
- Transport Quality Assurance (TQA) program the result of research that was then translated into an educational program.
- Need to look at the stereotypical view of pork industry by consumers.
- NPB recognizes that consumers’ perceptions and misconceptions about pork industry need to be addressed, and that industry needs to be proactive.
- Industry needs to demonstrate both confidence and competence to build consumer trust. TQA program designed to build consumer trust.

Certification

- One reason that an industry might adopt a certification approach might be to keep up with the changing times (technological innovation) in recognition of the short “shelf-life” of academic degrees.
- Other reasons include the ability to address the public demand for standards, as well as a desire to avoid regulation.

- Benefits of certification to companies include:
 - i. Accepted standards of excellent performance and ways to measure and hold people accountable to this standard;
 - ii. A basis for determining who is competent and capable... taking the guesswork out of who to hire and retain;
 - iii. A marketing advantage by having more competent certified people on staff;
 - iv. A career path and prestige for employees.
- Benefits to individuals include:
 - i. Grants professional credentials;
 - ii. Demonstrates commitment to profession;
 - iii. Enhances the profession's image;
 - iv. Reflects achievement;
 - v. Builds self-esteem;
 - vi. Can improve career opportunities and advancement;
 - vii. May provide for greater earnings potential;
 - viii. Improves skills and knowledge;
 - ix. Prepares individual for greater on-the-job responsibilities.

TQA Program

Introduction and History

- Previously program was called *Trucker Quality Assurance*. Implied that the training would only benefit those driving vehicles transporting pigs. Program has been repositioned to *Transport Quality Assurance* because target audience has been expanded to take into account more components of the food supply continuum (refer to diagram on right).
- TQA-Plus is a program which provides an opportunity for producers to achieve certification as well as an on-farm assessment. Throughout the marketing chain NPB offers Process Verified Programs, Hazard Analysis and Critical Control Points analysis, etc.
- Prior to 2002, there was a gap identified in the transportation component.
- TQA is checkoff funded through NPB. While participation is voluntary, many plants have asked transporters to provide proof of certification.
- Part of TQA objective is to increase awareness that pork quality is affected by animal welfare practices.



Recent Enhancements

- Been around since 2002. Every 3 years, the program has undergone some enhancements to incorporate latest information. TQA version 3 was launched on February 1, 2008.
- Name changed from Trucker Quality Insurance to Transport Quality Assurance.
- No longer focuses solely on market hogs – more comprehensive approach.
- Includes section on worker safety.
- Biosecurity and emergency response sections have been enhanced.

- Delivery continues to be face-to-face for new trainers; however current instructors can access online training to update.
- Terminology has changed: from TQA instructor to TQA Advisor; from TQA certified individual to TQA Handler.

Training Components

- NPB staff trains TQA Advisors in day-long workshop, which includes exam; TQA Advisors train TQA Handles in a training course, which includes an exam.
- Advisor Training Session includes: Emergency Response (Jennifer Woods); Transport Losses (Dr. Matt Ritter); Worker Safety (Jeff Gittings); Facilitation Skills; Program Administration; TQA Workshop; Exam.
- The blended training approach provides advisors flexibility for use of training aids (PowerPoint, video clips, manual, videos (in development)) to meet individual needs or limitations.
- TQA Advisors also taught facilitation skills including adult learning principles as well as techniques to enhance learning. For example, TQA Advisors provided an overview of types of learners (visual, auditory, kinesthetic).

Target Audience & Content

- Target audience includes transporters, producers, pork production employees, load crews, receiving crews – perhaps more.
- TQA Advisor would spend about 2 hours to cover the following course components:
 - i. TQA Program Requirements;
 - ii. Introduction;
 - iii. Handling;
 - iv. Loading and Unloading;
 - v. Transportation (process of driving a truck);
 - vi. Fitness of the Pig (determining unfit for transport);
 - vii. Biosecurity;
 - viii. Emergency Response Plan;
 - ix. Laws and Regulations (U.S.);
 - x. Transporter Attitude.
- Try to package with interactive activities such as computer modeling of pigs’ flight zone.

Timeline

- TQA-3 was launched on February 1, 2008.
- Asking all advisors to use only TQA-3 from this point forward.
- Face to Face training sessions for new advisors scheduled throughout rest of year (see schedule on right).

2008	
February 1st	Program Rollout/Reintroduction
May 1 st	Deadline to Complete Online Testing
Face-to-Face Training	
March 18th	Des Moines, IA
July 15th	Des Moines, IA
November 18 th	Des Moines, IA

Success

- Anecdotal feedback indicates that program has been a successful training tool for creating the awareness of animal handling.
- There are nearly 13,000 certified TQA Handlers.
- There are more than 200 certified TQA Advisors.

Update: Master Cattle Transport²

Ryan Rupert, National Cattlemen's Beef Association

Background

- Master Cattle Transport is the “beef version of TQA”.
- NCBA started at around the same time as NPB, but had to put on hold due to several industry issues with which cattle producers were challenged. As a result, cattle training program is significantly behind pork training program.
- Master Cattle Transport was an off-shoot of a National Beef Quality Audit and Market Cow/Bull Beef Quality Audit (in place since 1991).
- Want to continue to evaluate the industry and maintain the most updated information possible.
- In 2000, after looking at bruising data (almost 50% of cattle had bruises going into the plant). some improvements made, but did not really address the transportation component.
- It is estimated that bruising is costing the industry ~\$117 million annually.

NCBA Survey at Plants

- At 23 plants, association worked with plant personnel to survey 10% of drivers that delivered cattle over a period of 10 months.
- Loads over 28 hours were only 1% of the market cattle being transported to slaughter. None of the trucks surveyed were noted with having a crowding issue.
- Maximum distance traveled was 1,250 miles, which tended to be mixed loads of dairy and beef. Many plants are pulling cattle from as many as 18 states, so transport companies are having difficulty loading trailers to capacity.
- The doghouse was used on all loads 16% of the time. Should not be used for mature cattle; only with animals with individual weights of 700 lbs or less.
- Speaker acknowledged that the doghouse was used more than NCBA would like to see. Tended to be used for injured cows that required additional TLC.
- Many loads were not sorted by gender. Concern for NCBA.
- Amount of deads/downers being delivered was very low.
- Recent HSUS video is certainly the exception, and not a common occurrence.
- Disappointed that electric prods were applied on beef cattle in 18% of deliveries. Dairy cattle were not subjected to electric prods as much. Long haul drivers tended to be the ones that were overzealous.

Master Cattle Transporter Program

- Importance of animal welfare is becoming an increasingly important issue to industry.
- Master Transporter Handbook and DVD are available in lieu of association's ability to develop and implement full TQA certified program.
- Manual addresses several issues (e.g. – flight zones, how to move cattle with less effort, ramp set-up, gaps, knowingly inflicting unnecessary pain or injury, non-ambulatory cattle, check-lists, biosecurity). Manual is glove-box size to facilitate on-going reference. All materials, including entire DVD is on Website (www.tbqa.com).
- Many truck drivers have not been trained on how to influence the flow of cattle.
- Master Cattle Transporter Program has recently been re-prioritized.
- NCBA working with NBP to see if synergies exist. Likely that about 70% of course content will be similar.

Summary of Key Messages

International Insights – Perspectives from the European Union (EU)

Eddie Harper, Chairman of Road Haulage Association (RHA) Livestock Transport Group and Director of Assured British Meat (ABM)

- Industry has to take the lead and take control of its future. Don't wait for the other side to set the agenda. Animal welfare activists will not go away.

Driver Fatigue Management

Jennifer Woods, J. Woods Livestock Services

- Driver fatigue needs to be better managed. Industry needs to recognize that commercial livestock drivers have very complex and difficult jobs. All stakeholders in the supply chain need to take a closer look at their operations with a view to making changes that will lessen some of the difficult and unrealistic demands being placed on drivers.
- Those who control transport, control the industry.
- Livestock transporters need to be better organized – need better representation.
- Non-transport related stakeholders cannot continue to avoid responsibility for transportation.

Developing a National Emergency Program

Sherrie Niekamp, National Pork Board

- The development of a National Emergency Program has the potential to benefit the industry in several ways.
- Since first responders do not want different guidelines/training for each species, commodity groups have to work together with a goal of delivering multi-species training programs for targeted audiences and establishing a national emergency response network.

International Insights – Perspectives from Canada

Martin Appelt, Ph.D., Canadian Food Inspection Agency

- Canada can learn from the experiences in Europe, where the animal welfare legislative agenda has largely been set by activists as opposed to industry. Industry needs to stand up for itself, speak to the people in power, and not leave it to activists to influence laws that affect industry.
- CFIA is not attempting to achieve a gold standard when it amends the Transportation of Animals regulation. As it has in the past, the regulation will utilize an outcome-based approach.

Loading Density

Terry Whiting, Ph.D., Manitoba Agriculture Food and Rural Initiatives

- There is a presumption that overloading is a cause of poor animal welfare.
- Scientific studies have often confirmed practices already in use by industry, which suggests that industry has an inherent understanding of animal needs in transit (most of the time).
- Density guidelines have to be written with an understanding of who the primary audience is. In the case of transporters, it makes more sense to speak of loading densities in terms of pressure per area (e.g. – mass per square foot, or mass per liner foot of trailer deck).
- Guidelines that suggest maximum numbers on a per trailer basis are virtually useless. Industry needs to look at loading densities on a compartment by compartment basis.

Ventilation in Trailers

Eddie Harper, Chairman of Road Haulage Association (RHA) Livestock Transport Group and Director of Assured British Meat (ABM)

- Ventilation is an important welfare consideration, since one of the major causes of stress during transport is the thermal environment.
- Preliminary research suggests that fan ventilation in trailers can go a long way in reducing stress caused by high ambient temperatures for livestock in-transit. There are still some challenges that need to be resolved (e.g. – keeping fans operating in the case of mechanical breakdown).
- While extreme dry heat can be bad, humidity causes more stress for animals in trailers. As a result, misting or using water sprinklers can often make the internal conditions worse for the animals.

Trailer Design and Transport Losses

Matt Ritter, Ph.D., Elanco Animal Health

- In a controlled study (for pigs), the primary conclusion was that there was no effects of trailer design on transport losses when handling and transport floor space were standardized across trailers.
- People handling the pigs have the greatest influence. You can put the best driver on the worst trailer, and he'll find a way to make it work; you can put an inexperienced driver on the best trailer, and he'll likely have some losses. Driver (as well as loading/unloading personnel, if different from the driver) effect is larger than the trailer design effect.

Beef Transport Benchmarking Study

Karen Schwartzkopf-Genswein, Ph.D., Agriculture Canada

- There is a need to ensure that there is a clear understanding of what is happening today when it comes to the transport of cattle (or other livestock) in terms of marketing, distances traveled, loading/unloading conditions, etc. so that this key information can be considered as part of the regulatory review process.
- Research project provides first glimpse of areas to further study such as the relationship between animal health and well-being, performance and meat quality with respect to:
 - i. Loading density;
 - ii. Feed water and rest intervals;
 - iii. Transit distance;
 - iv. Internal trailer environment;
 - v. Trailer design and features.

Update: TQA – Train the Trainer

Eric Risa, National Pork Board

- Consumers' perceptions and misconceptions about the pork industry need to be addressed, and that industry needs to be proactive.
- Industry needs to demonstrate both confidence and competence to build consumer trust. The TQA program is designed to build consumer trust.
- Certification helps to keep up with the changing times (technological innovation) in recognition of the short "shelf-life" of academic degrees, and addresses the public demand for standards. It can also help to avoid regulation.

Update: Master Cattle Transport

Ryan Ruppert, National Cattlemen's Beef Association

- Importance of animal welfare is becoming an increasingly important issue to the beef industry.
- Many truck drivers have not been trained on how to influence the flow of cattle.
- Educational materials including Master Transporter Handbook and DVD have been developed and are available in lieu of association's ability to develop and implement full TQA program. Information can be accessed at www.tbqa.com.

About the Author

Betsy Sharples is an independent consultant who has a lifetime affiliation with the trucking industry, having been virtually raised in a family trucking business where she also worked for five years. She started as the Manager of Carrier Operations for the Ontario Trucking Association in 1988 and held a variety of management positions there until she left the organization in 2004. Throughout her tenure at OTA, she had full responsibility for managing the association's Livestock Transporters' Division. She continues to manage the division on behalf of OTA as its executive director, a position she has held since 2004.

In this capacity, Betsy represents livestock transporters on several provincial and national committees including the Ontario Humane Transport Working Group, the Ontario Farm Animal Council, the Canadian Zoning Committee and several of its sub-committees, the National Farm Animal Care Council and the Dairy Cattle Code of Practice Development Committee. She also attended the CLT Train-the-Trainer course in Lethbridge, Alberta in January, 2008.

¹ EU Member states: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, United Kingdom.

² Presentation used at conference was not available on the CD included in the handout, or on the Website where other presentations were made available. As a result, this summary is not as comprehensive as others.