

Live cattle exports

Dennis Thomson

Senior Livestock Export Veterinary Officer, AQIS Operations, PO Box 1970, Berrimah NT 0828

Ph: (08) 8999 2093 • Fax: (08) 8999 2098

Email: dennis.thomson@aqis.gov.au

Introduction

Live cattle exports to SE Asia and the Middle East now represents the most important market option for northern cattle producers. Whilst this is not necessarily a good thing in terms of market diversification it is the way the industry has developed and we must do all in our power to foster it whilst concurrently seeking alternatives. The trade has both a feeder and a slaughter component, however, this paper will concentrate on the feeder cattle trade and in particular the SE Asian component.

Aim

The real aim of this trade is to deliver to the feedlot an animal that will grow to a slaughter weight with minimal fat deposition in the shortest possible time interval and with a superior feed conversion ratio. Genetic gain in terms of superior performance in the feedlot must be carefully weighed against base breeder herd productivity in terms of progeny production.

Whilst the ultimate aim is to make a profit, the enterprise must also involve a strong ethical component as we are dealing with live animals. Unless these animals have been properly trained and backgrounded they will find the export process much more stressful than it need be. Quiet and contented animals are invariably more profitable. The trade has made good progress in terms of welfare on the short haul SE Asian run, however, recent welfare disasters in the Middle East have again focused public attention on the whole trade. It is vitally important that export cattle are not exposed to conditions on the journey or in the delivery feedlot that will put them at unacceptable risk.

Tropical feedlot production can probably never rival its temperate equivalent in terms of productivity; however, the feeder cattle export industry should continue to strive to emulate the standard benchmarks applied to Australia's cattle feedlot sector in terms of cattle husbandry.

The Export Journey

The journey starts at the station of origin and ends at the destination feedlot, however, the success of the enterprise depends on many factors occurring prior to mustering and does not really end until the consumer is eating the product.

Curfew

As soon as cattle are taken off feed and water, they start to lose live weight, mostly as gut fill via urine and faeces. (Figure 1) The greatest weight loss occurs in the first 8-12 hours. Cattle off grass lose weight faster than those off grain and standard shipboard rations. Cattle off grass with low dry matter content such as 'top end' wet season pastures lose weight faster than those off pastures with high dry matter content. Carcass weight losses at rest begin after cattle are off water and feed for at least 12 to 24 hours, respectively. Because of the large capacity of the rumen, which may hold up to 50-60 litres, cattle have the ability to lose an incredible proportion of their bodyweight without fatal consequences. Some cattle delivered to export depots are clinically dehydrated. The bodyweight losses are probably reflected on the Series 2 graph and are indicative that these animals are overstressed.

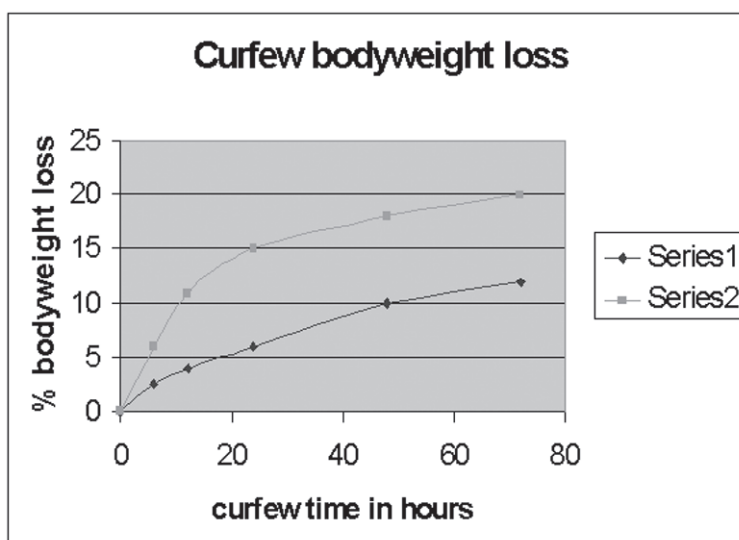


Figure 1: weight loss for cattle without feed and water. Series 1 at rest. Series 2 under extreme conditions.

Dehydration levels of 10% are clinically evident in cattle as indicated by sunken eyes. This would indicate total bodyweight losses of 12% or more. Cattle can take days to recover this level of lost bodyweight even under good conditions, spread out and with ad lib access to feed and water.

A good rule of thumb would be to keep bodyweight losses below the 10% level by careful preparation prior to trucking and breaking up the journey to ensure proper recovery after each phase. This includes giving cattle time to settle down after mustering, and later after

handling, to prepare them for transportation. Fatigued cattle do not perform well in depots and often take more time to recover than one would expect. Feeding cattle hay and /or ship fodder prior to trucking is an easy way to manage bodyweight. Consigning empty cattle, which are marginally dehydrated, is definitely ill advised both ethically and economically.

The Rumen

This organ holds the majority of the feed and water that can be quickly lost as explained above. The rumen is similar to a boiler on a steam engine. If one allows the fire to burn too low or go out it takes a long time to get it back to a full head of steam. Ruminants require just about constant access to feed to maintain optimum rumen fermentation. If the process is denied, substrate in the form of water and fermentable carbohydrates for excessive periods of time, results in significant bodyweight losses occurring. We must encourage optimum levels of rumen fermentation throughout the export process by maximizing exposure to feed and water.

We are not attempting to get the cattle to gain true bodyweight but are endeavouring to recover bodyweight losses in the form of gut fill and hydration. High-energy grain based feeds are not used in the live export process due to risk of acidosis and overheating. Normal energy levels of ships rations are only about 8-10MJ ME (megajoules of metabolisable energy) per kg. Shipboard allocation of feed per day is 2% of bodyweight and therefore true weight gain is energetically difficult given that the energy to gain 1kg in true bodyweight takes around 34MJ ME.

Example: 340kg animal at rest requires for maintenance
 $8.3 + .091 \times 340 = 39\text{MJ ME}$

Activity requires an extra 15% = 45 MJ ME

Energy supplied at full rations .02x 340 @ 8MJ ME
 per kg = $6.8 \times 8 = 54\text{ MJ ME}$

Energy for growth = 9 MJ ME which will theoretically
 put on around .26 kg true BW

Backgrounding

Backgrounding is the process of introducing or familiarising animals with novelty. Training animals to eat ship's rations out of troughs under crowded conditions or getting animals used to the close presence of man are examples. With horse training Pat Pirelli says 'make what happens happen before what happens happens.' This also applies to cattle, which can be trained not to panic under stress. The industry has an ethical responsibility to do this and ironically there are invariably economic gains to be achieved from the process. Feeder cattle properly backgrounded at weaning and thereafter every time they are handled perform much better than their non-backgrounded cohorts.

Strengthening herding and following behaviour, reducing flight distance, familiarizing cattle with race and yard systems, crowding and noise and training

them to drink and eat from troughing are all part of the process.

Allocation of space

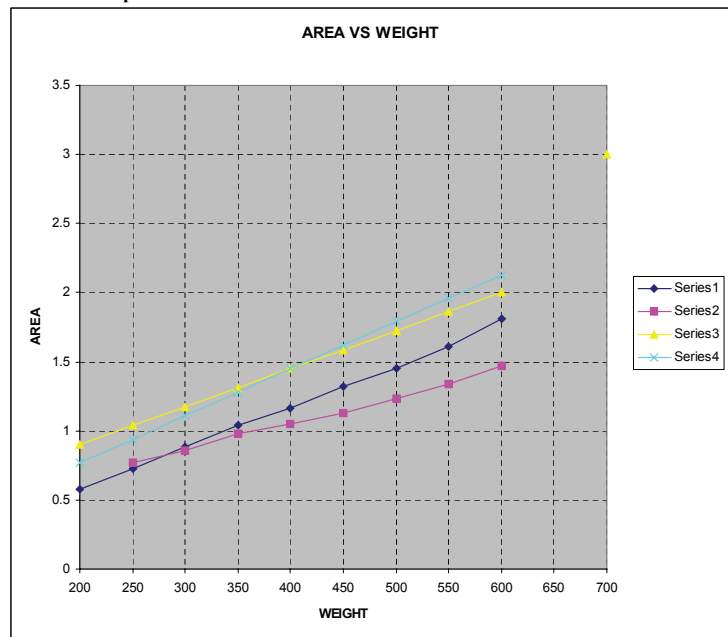


Figure 2: Space allocations for cattle on trucks and ships based upon weight.

Series 1: Trucking space @ Approx 10,000 kg per deck
 Series 2: Trucking space @ Code of Practice rate
 Series 3: Shipping space @ formula .00275 x bodyweight + 0.35 sq metres per head
 Series 4: Shipping space @ formula .0034 x bodyweight + 0.09 sq metres per head

During the 1970's we were aware that the AMSA space requirements for cattle on ships often made heavier cattle too tight and lighter cattle too loose volumetrically. It wasn't until the 1990's that a move was made to correct this anomaly. Darwin based veterinary officers submitted a paper to AQIS advocating some definitive research to establish a new density allocation based upon requirements for comfort and ability to move around the pens. Our hypothetical model was adopted without proper trials. Fortunately the new formula has provided heavier cattle with improved comfort; however, some lighter cattle with large frames and in low condition score are at risk of overcrowding using this formula.

Weight is an indistinct measurement for cattle as it can vary markedly as outlined previously. Theoretically we would be better off loading cattle according to volume, however, existing technologies to measure volume such as video imaging need further research to establish their practicality.

Many stations would currently volume load in that they would load on an estimated average live weight, load the truck and then ensure the load is neither too loose nor too tight. Unfortunately with shipping we currently have to load on a live weight, which could be much less than the true full equivalent bodyweight in a worst-case scenario, thus under estimating volume. Generally exporters on the SE Asian run have an economic incentive to fill their animals up prior to embarkation as the short delivery voyage gives very little time to fill them at sea. This means that in general the live weights used to calculate space are better correlated in a volumetric sense. This is not always the case on the longer runs where cattle may be loaded empty.

Shipping Phase

Currently the live cattle trade uses mortality figures in the shipping phase as a measure of outcome for the industry. Except for the very odd shipping disaster due to rough weather or breakdowns the trade to SE Asia has a very low mortality rate. A better measure of outcome may be the change in live weight on the voyage. Most exporters hope for a measured weight gain during the shipping phase, which as explained previously is more reflective of gut fill and hydration than a true weight gain.

Shipping factors which can impinge upon this outcome include; the ability of the ventilation system to maintain heat load at comfortable levels; the configuration of the pens and efficiency of the water/feed systems; the true density of the cattle in volumetric terms; the prevailing weather conditions in terms of its effect on pitch, roll and deviation; traction of floor and comfort of bedding and ability of stockmen to timely intervene if animal problems arise.

The ability of cattle to readily adapt to the ship environment is enhanced by prior training and

backgrounding. Cattle on ships are relatively crowded and their comfort and ready access to feed and water is vital to the maintenance of bodyweight.

Conclusion

The live cattle industry must continue to embrace progress in the humane handling and backgrounding of export cattle to ensure ethical responsibility and increased performance of our cattle at the destination feedlot.

Disclaimer

This paper reflects the ideas of the author, which are not necessarily those of AQIS.

References

Cusack, P. (1999) Basic Ruminant Nutrition Principles. Proceedings of the Australian Association of Cattle Veterinarians 1999 - Hamilton Conference. ISSN 1440-6217.



Notes