

Heat and Cold stress in *Bos Taurus* cattle from southern Australia during long-haul export by sea: draft report. November 2021.

To whom It May Concern;

I have personally loaded *Bos Taurus* cattle onto live export ships for long haul voyages from southern Australia as a stevedore for three years (1999 to 2001 inclusive), sailing 57 voyages, (all but one) from southern ports in Australia as a Veterinarian, followed by close monitoring and involvement in raising awareness of the issues encountered by animals and crew on board live export ships till current day. I believe my substantial first hand knowledge should prove of value to this submission process. 22 years of direct knowledge.

The apparent never ending desire of the industry players such as MLA and LiveCorp to persist in an embarrassing plethora of repetitive R and D into a trade that is well understood to be financially unsustainable if higher/ more acceptable animal health and welfare levels were reached, is making a mockery of Australia, our Veterinary, Agriculture and Government professionalism generally.

The main causes for concern to the welfare of shipping cattle, especially *Bos Taurus* are rooted deeply and unforgivingly in the environmental conditions encountered and the infrastructure used. Neither of which can either be manipulated to advantage or be managed sustainably. Regardless of continuing 'research and development'.

Infrastructure:

- Cattle cannot escape cold ambient air being blasted upon their bodies (dry or wet) when on a ship, especially when passing through potentially cold stress areas such as the Great Australian Bight, Russia, Turkey or China.
- All animals, especially *Bos Taurus*, more greatly so *Bos Taurus* Dairy breeds, benefit from bedding sufficient to reduce some of the issues in regards to injuries from infrastructure. That the latest ASEL does not require bedding on all voyage's flies in the face of the LIVEEXCollect's own desire to seek consistent data from observations. There is no consistency in observations/data if the basic, general living and management conditions on each voyage are not as consistent as possible. All voyages should carry sufficient and appropriate bedding to mitigate abrasions from the concrete flooring as well as to encourage the resting of animals (especially if ill- ie pneumonia) and provide acceptable hygiene.
- Cattle suffer acutely/ chronically from unsuitable (concrete and metal) infrastructure exposure 24 hours a day, 7 days a week for however many weeks a voyage takes:
- These ships cannot be made into the equivalent of padded, horse anaesthesia boxes, to reduce harm and be financially viable. Bedding is the best option.

- *Bos Taurus* cattle are as vulnerable to sepsis, pain and death from injuries as any other animal- this fact cannot be mitigated on these ships. Approximately 10% of mortalities were accredited to leg injuries in Jo Moore's, PHD Thesis as funded by MLA – a much higher percentage of cattle experience, suffer and endure leg injuries than die from it. *Bos Taurus* being the most common category of cattle with leg injuries.
- *Bos Taurus* cattle are as vulnerable to drowning on these ships as any other land based mammal- this cannot be mitigated. Especially when our *Bos Taurus* cattle are often following a similar route to the *Gulf Livestock 1* that sank last year with nearly 6,000 *Bos Taurus* cattle on board. New Zealand had accepted the fact that ships sink and safety/ health and welfare cannot be guaranteed and are ceasing their live exports of cattle in 2023. Rapid changes in weather and seas cannot be mitigated- ever.
- All cattle including, and in my experience, especially *Bos Taurus* with their more clumsy manner of lying down and getting up, in comparison to the average *Bos Indicus* cattle makes them more prone to abrasion injuries of hooves and soft tissue- leading to injury, pain, infections/ death. This is a greater problem again with *Bos Taurus* dairy breeds with their bony prominences, often experiencing additional injuries such as bruising, haematomas (commonly very large) and lacerations.
- No amount of R and D will mitigate the issues raised above.
- Replacing live export with the export of meat and genetic materials such as semen and embryos can mitigate the health and welfare stressors mentioned above.

Thermal Stress:

All cattle suffer from the comparative rapid change in thermal environments as our ships head across the planet in a northerly direction:

- Nothing can be done to change the detrimental/ lethal effects of the external environmental temperatures experienced, except to avoid them.
- The environment experienced internally on a ship, influenced from the external environmental global temperatures experienced, cannot be manipulated to be acceptable. Hence manipulating temperatures internally only results in major (potentially lethal) thermal shock upon unloading (be it cold or heat stress).
- The cattle that suffer the most from Australia's trade to the Northern hemisphere are *Bos Taurus*. They generally come from cooler southern ports- to literally polar opposite hemispheric temperatures (with the exception of Wagyu sailing from QLD ports to Japan). The exact nature of risks related to the direction of transport cannot be manipulated except by only transporting in months outside of either hemispheres summer or winter. Two tight, short and unpredictable thermal windows of trade.
- *Bos Taurus* cattle cannot be reasonably shorn to reduce the added heat stress risk of their long, winter acclimatised coats when travelling to a Northern summer. Neither can they reasonably be rugged to avoid cold stress when travelling to the northern Hemisphere winter from an Australian summer with their 'slick' summer coats.
- Washing of long coated, sewerage covered Australian summer cattle when approaching cold climates is detrimental to their health, leading to hypothermia as well as exacerbating the biggest cause of mortality and morbidity on ships- Pneumonia.
- *Bos Taurus* cattle do not benefit from the genetic/evolutionary heat tolerance benefit of *Bos Indicus* cattle: hence are observationally much more vulnerable to heat stress.

Moratorium of Northern summer trade must be extended to protect them. We cannot change the environment or the cattle's physiology- No R and D will manipulate these facts.

- "Hot spots" exist on all ships. These areas should never be loaded. Never.
- Thermal and gaseous data logger information is not readily available, however external temperatures of ambient air and sea water temperatures are all easily available from any point in the world from multiple sources and can be extrapolated using specific heat capacity to indicate the thermal stress being experienced inside a ship.
- Decades of thermal research and collected data from daily and end of voyage reports from ships exists, all be it taken from the mid-morning and not the hottest part of the day experienced by the cattle. Yet it is not utilised to support the fact that the environs inside ship decks full of cattle is rarely conducive to reasonable animal welfare standards.
- Having a wet coat after a wash that can usually be managed to not wet the bodies (wash decks (remove sewerage) and legs (to assist finding leg injuries) only) of cold cattle is only temporary compared to standing next to or under the wind chill factor that cold environments such as Russia, Turkey or China pump into the decks of cattle that cannot escape them or seek shelter without pushing a weaker animal in the path of the cold air. This cold stress is commonly experienced simply sailing around the bottom of Australia.
- Replacing live export with the export of meat and genetic materials such as semen and embryos can mitigate cold and thermal stress.

Conclusion:

The incomprehensible fact that intelligent scientists/ vets/ researchers/ institutions continue to accept financial industry offered incentives to persist with researching a trade that cannot be fixed to a level that the general population of developed countries will accept is astounding. There is growing shame globally in relation to the continuing of mass live animal exports.

How much more tax-payer and farmer levy money will this industry manipulate out of pockets to artificially extend the lifespan on an unsustainable and damaging industry with research and development that will not benefit the animals in this trade?

How much longer will this industry capitalise on their own poor transparency to fabricate the need for more research, development, reviews, drafts and almost inconsequential tweaks to regulation.

Much, if not all data of interest already exists and proves that this trade cannot be improved from its current unacceptable state. And much of this is not even available to the public.

How many more animals will suffer/die at sea before it is inevitably conceded that Live Exports are only in the best interests of a small handful of businessmen (very few from Australia).

The correct action to take would be to finally implement any and all past review recommendations that have been proposed, especially those officially 'accepted in principle'. Observe the outcomes and adjust or cease trading as indicated.

The main issues to be implemented would include reduced stocking densities, Vets on every voyage, sufficient bedding on all voyages, extended northern summer trade moratoriums as a minimum. We need to acknowledge the well known limitations of bovine physiology and the risks from environmental pressure, be it heat, cold, rough seas, storms etc.

The more humane alternatives such as the export of meat and genetic materials (semen and embryos) should finally be embraced fully to end this appalling, credibility deteriorating and embarrassing stream of draft reports, investigations, and reviews.

Sincerely