**Mortality Investigation Report 72 Cattle exported by sea to Indonesia in January 2018**

**Summary**

On 28 January 2018, Australian Rural Exports Pty Ltd (Austrex) exported 1,570 feeder cattle by sea to Indonesia. The voyage was completed in eight days and discharged in Indonesia on 5 February 2018.

A mortality rate of 1.85 per cent (29 cattle) was reported. The mortality rate exceeds the reportable mortality level of 0.5 per cent for cattle on voyages of less than ten days as prescribed by the *Australian Standards for the Export of Livestock* (ASEL).

Of the 29 mortalities reported during the voyage, 20 died in their pens of suspected bovine respiratory disease related illness or were downers (unable to stand). The exporter suggested the cause of mortalities was bovine respiratory related illness brought on by excessive stress from unfamiliar surroundings, weather and cattle type. The remaining nine were unfit for discharge and were euthanised in port. The exporter has reviewed and revised their Higher Risk Cattle Management plan and a Bovine Respiratory Disease (BRD) management plan to address the risk factors associated with export of cattle by sea to all markets.

**Information reviewed**

The department reviewed the mortalities by assessing the following information:

1. report from the exporter
2. daily reports and end of voyage report and additional information from the accredited stockperson who accompanied the consignment on board the vessel
3. load plans and feed dockets from the exporter
4. documents from the Australian Government Accredited Veterinarian (AAV) who prepared the consignment
5. report from the Master of the vessel
6. documents and information from the regional department veterinary officer (DVO)
7. records from the registered premises (RP)
8. department records from previous and subsequent voyages.

**Background**

Prior to this incident, there had not been a reportable mortality event for cattle exported by sea to Indonesia since October 2011. Between the last reportable event and this mortality event there has been 833 voyages to Indonesia, carrying 3,425,960 cattle with 1,817 mortalities, an overall mortality rate of 0.05 per cent.

In the 12 months prior to this incident, Austrex had exported 100,235 cattle on 30 voyages with an average mortality of 0.02 per cent (a total of 24 mortalities).

The department does not routinely require an AAV to accompany consignments to Indonesia. The LiveCorp accredited stock person works with the Master of the vessel and the crew to maintain the health and welfare of the livestock on board and is responsible for providing an end of voyage report to the department. The department did not require an AAV on board this voyage.

**Investigation Findings**

**The livestock**

The consignment consisted of 1,570 feeder cattle (Brahman/Brahman cross) averaging 449 kilograms, including 33 heavy cattle (over 650kg). The average weight limit for feeder cattle imports to Indonesia is 450kg, with a maximum age of 48 months. The cattle were sourced from two properties of origin in the Northern Territory.  At the time of mustering (during the Northern Territory Wet Season), conditions at both properties were wet with both the stations and facilities experiencing heavy rainfall. Twelve cattle were rejected at the properties due to lameness and body condition. The cattle were trucked from the properties to the registered premises (RPs) between 24 and 25 January 2018.

**Preparation in the registered premises**

Three RPs were used for pre-export quarantine. All three are located in the Adelaide River region in the Northern Territory and are routinely used to prepare cattle for export. All three RPs are registered to hold cattle at all times of year. The cattle arrived at the RPs between 24 and 25 January 2018 and were held there until 27 January 2018. This met ASEL requirements for a minimum of 24 hours in an RP for voyages of less than 10 days.

Austrex complied with their Heavy Cattle Management Plan at the RP; the heavy cattle (over 650kg) were held at the RP for three days and were penned separately from other lines of cattle. The heavy cattle were also held in holding yards and away from muddy paddocks.

The recorded rainfall was slightly higher than average for the period, with the maximum temperature recorded 32.4°C (Bureau of Meteorology, 2018). Austrex staff rejected 23 cattle at the RPs due to lameness attributed to wet conditions in the yards. A total of 1581 cattle were examined by the AAV at the RPs on 26 January 2018. All were assessed as fit and healthy for export except for nine which were rejected for lameness. The AAV did not record any signs or symptoms of respiratory stress throughout the cattle’s time in the RPs. 1572 cattle were treated with 20-35ml of Ivermectin between 25 and 27 January 2018, however the cattle were not vaccinated against BRD at the RPs (using Bovilis or equivalent). Two mortalities occurred at the RPs following treatment (one cause unknown, one downer). ASEL standards were met for preparation of livestock at the RPs. On 28 January 2018, 1570 cattle were trucked to Darwin for loading.

Following previous mortality events in 2014 (#54) and 2015 (#58), Austrex created a management plan for higher risk cattle. Austrex advised they did not implement the plan for this voyage as historically the cattle from the properties of origin have been high quality, and visual assessment of the cattle at the properties of origin and RPs deemed the cattle healthy enough to cope with the voyage.

**The vessel**

The vessel involved in this incident is a converted container carrier and is used for livestock export to a range of markets including Brunei Darussalam, China, Indonesia, Malaysia, Philippines and Vietnam. There have been three reportable mortality events on this vessel prior to this voyage. No definitive causes for the mortalities were identified for two of the voyages (#43 in 2012 and #60 in 2016), with the department concluding the mortalities for the third voyage were caused by injuries and pneumonia (#55 in 2014).

The vessel has five decks with Austrex’s consignment of 1,570 cattle the only consignment on the vessel. The cattle were loaded onto all five decks of the vessel.

**Loading onto the vessel**

Based on information provided by Austrex and the DVO, the department determined that loading was conducted in accordance with ASEL standards. Loading was completed in five hours through bad weather and constant rain and occasional thunderstorms. The maximum temperature in Darwin on the day of loading was 29.7°C and 136.2 ml of rain fell. Loading had to be stopped twice due to lightning for 20 minute intervals. Besides the two 20 minute stops due to weather no additional delays were experienced. Loading was slow due to the wet conditions, however no mortalities occurred during loading.

Austrex complied with their heavy cattle management plan, loading the heavy cattle (over 650kg) onto the vessel separately and giving the heavy cattle extra space and bedding. The heavy cattle were loaded into the pens which are closest to the loading and discharge ramps to reduce the distance they had to walk on the vessel, and were the final animals loaded onto the vessel. Excess fodder (equivalent to 15 per cent above ASEL specifications) was loaded onto the vessel.

**Conditions during the voyage**

An experienced on board stockperson was engaged for this shipment and was responsible for managing livestock health and welfare as well as reporting to the department. Sea conditions were rough during the first four days of the voyage, which Austrex attributed to causing additional stress to the cattle. The temperature ranged from 29 to 32°C and humidity ranged from 85 to 86 per cent. The cattle consumed an average of 5.5 kilograms of pellets per head per day and 27.4 litres of water per head per day. A total of 4.54 metric tons of chaff was fed to the cattle throughout the voyage.

The stockperson is not usually required to provide daily reports to the department, however the department required Austrex to forward the daily reports once the voyage reached a reportable level. The on board stockperson reported that while the weather was mostly overcast with occasional rain, the decks were dry throughout the journey. All ventilation fans reportedly worked well including additional electric fans and the cattle did not show signs of heat stress.

**Mortalities and treatments**

There were a total of 29 mortalities in the consignment of 1,570 cattle, a final mortality rate of 1.85 per cent. The first mortalities were recorded on day one. Twenty of the mortalities occurred during the voyage and nine were the result of euthanasia in port in Indonesia as they were recumbent and unable to rise. Details of mortalities are presented in the table below.

| **Date** | **Voyage Day** | **Number of mortalities** | **Cumulative Mortality** | **Cause of mortalities** |
| --- | --- | --- | --- | --- |
| 28/01/2018 | 1 | 3 | 3 | 2 cause unknown (very poor condition, found dead in pen)1 euthanased (weak/downer) |
| 29/01/2018 | 2 | 0 | 3 |  |
| 30/01/2018 | 3 | 2 | 5 | 2 cause unknown (downer) |
| 31/01/2018 | 4 | 2 | 7 | 2 BRD related |
| 01/02/2018 | 5 | 3 | 10 | 3 BRD related |
| 02/02/2018 | 6 | 2 | 12 | 2 BRD related |
| 03/02/2018 | 7 | 5 | 17 | 5 BRD related |
| 04/02/2018 | 8 | 3 | 20 | 3 BRD related |
| 05/02/2018 | 9 | 9 | 29 | Downers – euthanised (7 BRD related, 2 natural causes) |

Over the course of the voyage, 98 cattle were treated with Draxxin, Fluxinial, Dexapent and/or Norocilian for inanition, leg injuries and suspected BRD. Out of the 98 cattle treated, 89 were over four years old. The stockperson noted that the cattle did not show symptoms of BRD until they went down, at which point they exhibited shallowness of breath, panting, and discharge of mucous from the nose.

Austrex reported that ‘a large majority of the affected cattle seemed to be non-responsive to the treatment resulting in euthanasia or natural death.’ Of the seven post-mortem examinations conducted by the stockperson, four had evidence of significant lung disorder.

The stockperson also noted in his daily reports that the heavier cattle were reluctant to eat, and only ate a small amount of pellets throughout the voyage. The stockperson noted that the cattle were ‘responsive to chaff only’, so additional chaff was fed to the cattle.

The mortalities occurred in the lines of cows, medium bulls and heavy bulls (one heavy feeder steer, two medium feeder steers, four feeder cows, six heavy feeder bulls and 16 medium feeder bulls) all of which were over four years of age. These lines of cattle were reported to be affected by respiratory related illness as a result of the weather throughout pre-loading preparation and during the voyage. All mortalities were sourced from a single property of origin.

**Exporter’s Actions**

In its report to the department, Austrex concluded the cause of the mortalities was bovine respiratory related illness brought on by bad weather in the RP, rough seas during the voyage, as well as cattle class and age.

In response to this mortality event, Austrex implemented more astute and diligent selection processes which take into consideration environmental factors such as temperature and rainfall at the properties of origin and RPs. Austrex also reviewed their heavy cattle management plan and their on-board respiratory disease prevention management plan.

The Heavy Cattle Management Plan includes:

1. Additional actions to be taken at the RP including longer isolation time, separate penning and additional monitoring
2. Additional instructions for stevedores for loading (last to load, first to discharge)
3. Additional pen space on board, additional feed, additional bedding, additional on board monitoring requirements, additional veterinary supplies

The management for on board respiratory disease prevention will be implemented for all cows, and implemented for steers and bulls which are over 50 per cent Bos Taurus and over five years old. The plan includes:

1. Stricter rejection criteria based on breed, age and body condition (cattle will be rejected if they fit all three criteria of the following):
	1. less than 50 per cent Bos Indicus
	2. over six years of age
	3. have a body condition score of less than three
2. Austrex will delay the induction of cattle into the RP if weather is bad (i.e. during wet season)
3. Pre-export vaccination for BRD (Bovilis or equivalent), and possible multivitamin injection which will be assessed on a case by case basis
4. Additional bedding, space, chaff/hay, veterinary supplies loaded on board

**Australian Maritime and Safety Authority Evaluation of the Vessel**

AMSA conducted an investigation in March 2018 when the vessel returned to Australia. AMSA concluded that all livestock services were operating satisfactorily during the voyage. There was no evidence noted to indicate the high mortalities were due to the vessel's non-compliance with [Marine Order 43](https://www.amsa.gov.au/vessels/standards-regulations/marine-orders/%22%20%5Ct%20%22_blank).

**Conclusions**

The department’s review of all information indicates the cattle were prepared and managed in accordance with ASEL. Wet and cooler weather in the registered premises prior to shipping, and rough seas in the first four days led to downers and stress-exacerbated bovine respiratory disease establishing and causing high voyage mortalities in older medium and heavy bulls, all of which were sourced from a single property.

The department accepted the actions implemented by the exporter and did not take any regulatory action against the exporter.