



Australian Government
Department of Agriculture

Mortality Investigation Report 54

Cattle exported by sea to the Philippines in October 2014

March 2015



1. Summary

On 13 October 2014, Australian Rural Exports Pty Ltd (AUSTREX) exported a consignment of cattle from Darwin to the Philippines. There were 53 mortalities in this consignment of 2534 cattle, a mortality rate of 2.09 per cent. This 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)*.

According to the information available the cause of mortality was shipping fever (bovine respiratory disease).

2. Purpose

To report on the investigation into the cause of mortalities in a consignment of cattle exported by sea to the Philippines and to determine if any action is required to reduce the likelihood of recurrence.

3. Information Reviewed

The Department of Agriculture investigated the mortalities by reviewing the following information:

- Report from the exporter
- End of voyage report, daily voyage reports and additional information from the accredited stockman who accompanied the consignment onboard the vessel
- Documents from the Australian Government Accredited Veterinarian (AAV) who prepared the consignment.
- Report from the Master of the vessel
- Documents from Australian Maritime Safety Authority (AMSA)
- Documents from the regional Department of Agriculture veterinary officer (DVO)
- Records from the registered premises
- The department's records from previous and subsequent voyages.
- Laboratory test results reported by Berrimah Veterinary Laboratories.

4. Background

On the 13 October 2014 AUSTREX exported a consignment of cattle from Darwin, Australia to Subic Bay, Philippines. There were 53 mortalities in this consignment of 2534 cattle, a mortality rate of 2.09 per cent. This exceeds the reportable mortality level of 0.5 per cent for cattle on voyages of less than ten days as prescribed by ASEL.

The department does not require an Australian Government Accredited Veterinarian (AAV) to be on board as a standard requirement for feeder cattle to the Philippines. On voyages where there is no veterinarian on board, the LiveCorp Accredited stockperson is responsible for reporting to the department and works with the master of the vessel and the crew to maintain the health and welfare of the livestock on board.

Between 12 October 2012 and 12 October 2014, 59 232 cattle were exported to the Philippines with 58 mortalities recorded, an overall mortality rate of 0.098 per cent for this period.

5. Investigation Findings

5.1. The Exporter

The exporter of this consignment is experienced in preparing feeder cattle for the Philippines and other markets. The exporter has a history of low mortality voyages. Between 12 October 2012 and 12 October 2014, AUSTREX exported 23 534 cattle in 9 consignments to the Philippines, with 20 mortalities recorded, and an overall mortality rate of 0.085 per cent for this period.

5.2. The Livestock

The cattle in the consignment were Brahman and Brahman cross feeder cattle of mixed sex, age and weight.

5.3. Preparation in the registered premises

The cattle were sourced from twelve properties in Queensland, the Northern Territory and Western Australia and stock on hand at two registered premises. All cattle were assembled at one registered premise between 29 September and 12 October 2014. During assembly of this consignment four animals were injured and required euthanasia. There were no other mortalities or health issues reported during this period.

In compliance with the Philippines import requirements the cattle originated from properties with no reports of Q fever, enzootic bovine leucosis, infectious bovine rhinotracheitis, bovine malignant catarrh, mucosal disease, sporadic bovine encephalomyelitis, babesiosis, anaplasmosis, Johne's disease and anthrax. The properties of origin were also confirmed as free from brucellosis and tuberculosis and clinical evidence of bluetongue. In addition, the cattle were treated with a 7 in 1 vaccination and an external pour on for internal and external parasites.

The cattle were examined by the AAV and the DVO on 10 October 2014. No animals were rejected during this inspection. The cattle were found to be free from clinical signs of infectious and/or contagious disease and were declared healthy and fit to travel the export journey. Permission to leave for loading was issued on the 10 October 2014.

5.4. Loading onto the vessel

Loading of the vessel commenced on 12 October 2014 and was completed on 13 October 2014. A DVO was present at various times during the loading. No cattle were rejected during loading. One animal was euthanased during loading due to a fractured leg. Fodder, water and bedding were loaded in accordance with ASEL.

The consignment of 2534 cattle was loaded onto decks one through six. The vessel had six decks, with deck one being the lowest and deck six being the highest. All decks were utilised in this consignment. The exporter advises that they endeavour to load cattle identified as more susceptible to stress to be loaded last and discharged first. This may include animals that are older, heavier or have travelled further before export. In this case the slaughter cows were loaded last on decks five and six.

5.5. Conditions during the journey

Throughout the voyage the wet bulb temperatures on all decks ranged between 26°C and 29°C and the relative humidity ranged between 72% and 80% (Table 1). Temperatures remained relatively stable throughout the voyage and between decks, with fluctuations of no more than 3°C. The mortalities began on the third day and continued to occur throughout the voyage (with the exception of the injury during loading). There were no reports of rough seas during the voyage.

Table 1 On-board environmental conditions (source: exporter information)

Day	Temperature		Humidity	Ventilation
	Dry (°C)	Wet (°C)		
1	29-30	26-27	78%	100%

2	31-32	27-28	72%	100%
3	29-31.5	26-28.5	79%	100%
4	30-32	27-29	79-80%	100%
5	29-30	26-29	78-79%	100%
6	30-31	27-28	78-79%	100%
7	31-32	28-29	79%	100%
8	30-32	27-29	78-79%	100%
9/10	30-32	27-29	78-79%	100%

The accredited stockmen noted in the daily voyage reports that appetite was poor and feed consumption was reduced in the older cows during the first four days of the voyage. According to the daily voyage reports the cattle on decks one to four steadily increased their feed intake over the first four days of the voyage. There was ample water available and consumed throughout the voyage.

5.6. Mortalities and treatments during the voyage

Fifty three cattle died in the consignment of 2534. Table 1 shows the treatments and mortality percentages by day as reported in the daily voyage reports.

Table 1 – mortalities and treatments by day

Day	Daily Mortalities	Cumulative Mortality	Cumulative Mortality %	Comment
1	1	1	0.04%	1 steer fractured front leg while being loaded - euthanased
2	0	1	0.04%	
3	2	3	0.12%	2 cows found deceased. One bull moved to sick pen and treated with antibiotics and corticosteroids.
4	4	7	0.27%	4 cows found deceased overnight.
5	9	16	0.63%	9 cows deceased. Differential diagnosis of bovine ephemeral fever (three day sickness). Any animals showing signs of pyrexia, drooling, weeping eyes was treated with anti-inflammatories.
6	3	19	0.75%	3 cows deceased. Continued to treat any animals with signs of BEF
7	6	25	1.00%	6 cows deceased. Continued to treat any animals with signs of BEF
8	8	33	1.30%	7 cows and 1 steer deceased. Continued to treat any animals with signs of BEF.
9/10	20	53	2.09%	16 cows, 1 heifer and 3 bulls deceased. Treatment continued.

The accredited stockman on board notified AUSTREX on 16 November (Day 4) about the mortalities and clinical signs in the cattle. AUSTREX immediately sought veterinary advice from an experienced cattle veterinarian and AAV. Based on the symptoms described bovine ephemeral fever was considered a possible diagnosis and treatment with anti-inflammatories was recommended. This information was passed on to the accredited stockmen on board and treatment commenced.

On the 17 October 2014 (Day 5) when the mortality rate exceeded 0.5 per cent AUSTREX contacted the Department of Agriculture to advise of a notifiable incident. Throughout the voyage the stockman was in daily contact with AUSTREX.

On further investigation it was found that nineteen of the mortalities occurred in cattle originating from the same property of origin. The remaining mortalities were spread over 8 of the 12 properties of origin.

5.7. Mortality by class

The number of mortalities for each class of cattle is shown in Figure 1. The number of mortalities in the cows is significantly higher compared to other classes of cattle.

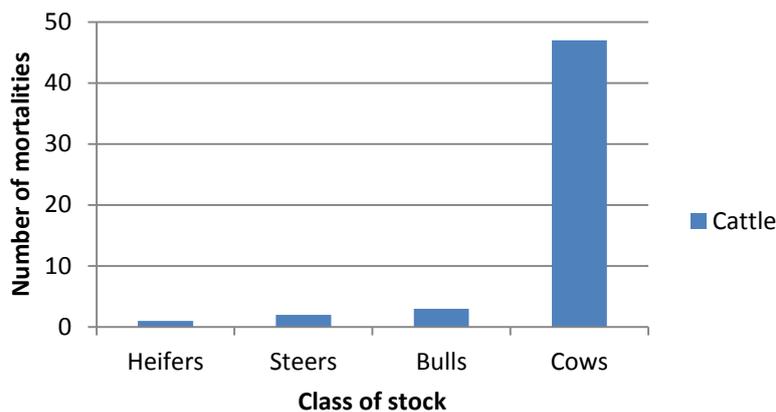


Figure 1 Number of mortalities by class.

5.8. Mortality by deck

The cattle were loaded on to decks one to six. Figure 2 shows the number of mortalities by deck. The number of mortalities was significantly higher on the top two decks where the cows were loaded.

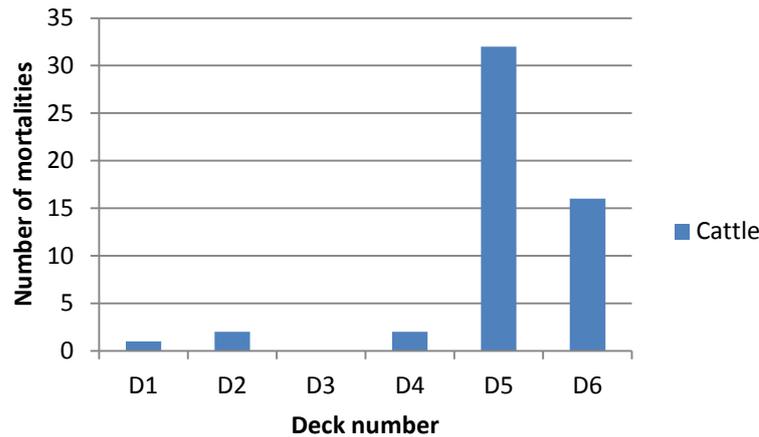


Figure 2. Number of mortalities by deck number.

5.9. Cause of mortalities

The pre-export AAV who prepared this consignment was engaged by AUSTREX to travel to the Philippines to oversee discharge and post-discharge care of the consignment and to investigate the cause of the mortalities.

The AAV completed several post mortems and collected samples for testing. These samples were submitted to Berrimah Veterinary Laboratory in Darwin. Post mortem findings showed moderate to severe fibronous pleuro pneumonia with consolidation of the cranioventral lung lobes.

According to the pathologist reviewing the samples; the history, clinical signs, post mortem findings and histopathological findings are diagnostic for shipping fever (bovine respiratory disease (BRD)). An infection with *Pasteurella/Mannheimia spp* is considered the most likely cause of the mortalities.

The possibility of bovine ephemeral fever was ruled out on the basis of negative polymerase chain reaction (PCR) tests on six blood clot samples and two splenic tissue samples.

6. Australian Maritime and Safety Authority Evaluation of the Vessel

The Australian Maritime Safety Authority (AMSA) investigates vessels when the reportable mortality level is reached. In accordance with paragraph 37.2 of *Marine Orders 43 (Cargo and cargo handling – Livestock) 2006* (MO 43) an AMSA preliminary inquiry was carried out on 3 November 2014 at Geraldton, Western Australia. The AMSA surveyor reported the vessel held a valid annual Australian Certificate for the Carriage of Livestock (ACCL) was found to be in compliance with MO 43 and that the vessel records indicated all livestock services on board the vessel were in full working order during the voyage. The AMSA surveyor concluded there was no evidence of adverse findings against the requirements of MO43, in relation to this voyage.

The Master’s observation also reported that the cause of the cattle mortalities was unclear and that all livestock services were maintained throughout the voyage.

7. Conclusions

The investigation did not find any information to link the mortalities to the preparation of the cattle in the registered. AMSA did not identify any deficiencies with the vessel. The cattle were prepared and loaded in accordance with ASEL requirements.

Based on; the history, clinical signs, post mortem findings and histopathological findings shipping fever (BRD) due to an infection with *Pasteurella/Mannhemia spp* is considered the cause of the mortalities.

8. Actions for subsequent voyages

The exporter has indicated they will take the following action to reduce the risk of similar events occurring in the future:

- The on board vet kit will be stocked with additional medications above the minimum ASEL requirements to prepare for a recurrence of a pneumonia outbreak on board.
- Shipments with higher risk cargo (predominantly cows) will be provided with sawdust for bedding, loading and discharge. This is above the current ASEL requirements. Chaff will also be provided for these animals.
- Cattle originating from high risk properties (based on previous performance) will be inspected on farm before selection and transportation.
- The possibility of carrying out a pre-shipment vaccination program for BRD for high risk cattle (predominately cows) will be investigated.

The department required an AAV to accompany the next consignment by this exporter using the same vessel. The AAV travelled with a consignment of 2371 cattle from Geraldton to Indonesia which departed on 4 November 2014. During this consignment 5 mortalities were recorded, a mortality rate of 0.21 per cent.

Between the completion of this voyage and 10 January 2015 the Sahiwal Express has completed four voyages carrying a total of 11,436 cattle with 15 mortalities recorded over the four voyages. Mortality rates on these consignments ranged from 0.03 per cent to 0.19 per cent.