Australian Government
Department of Agriculture

Mortality Investigation Report 47

Cattle exported to China by Air in September 2013

May 2014

Summary

On 27 September 2013, Principle International Pty Ltd exported 279 cattle by air from Melbourne to Harbin (China). There were 18 mortalities on the flight, a mortality rate of 6.45 per cent. This exceeds the 0.5 per cent reportable mortality level for cattle on voyages less than 10 days as prescribed by the *Australian Standards for the Export of Livestock (ASEL).*

Inadequate ventilation in the area of two crates on the lower deck is considered the most likely cause of the mortalities. The underlying cause of inadequate ventilation was not identified.

This consignment was the third in a series of three. Before this consignment the exporter had exported 563 cattle in two consignments from Melbourne to Harbin by air, with no mortalities reported. Following this incident this exporter has not exported any further consignments of cattle by air.

Introduction

On 27 September 2013, Principle International Pty Ltd exported 279 cattle by air from Melbourne to Harbin (China). The flight route included a planned stop in Darwin. The total flight time was 15 hours 11 minutes in accordance with the planned flight schedule. There were 18 mortalities on the flight, a mortality rate of 6.45 per cent. This exceeds the 0.5 per cent reportable mortality level for cattle on voyages less than 10 days as prescribed by the *Australian Standards for the Export of Livestock* (ASEL).

The purpose of this report is to investigate the cause of mortalities in these cattle exported by air to China and to determine if any action is required to reduce the likelihood of a recurrence.

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

- Documents from Principle International Pty Ltd
- Documents from the Australian Government Accredited Veterinarian (AAV) who prepared the consignment
- Documents from the regional Department of Agriculture veterinary officer
- Documents from the airline
- Documents from the Heilongjiang Entry-Exit Inspection and Quarantine Bureau
- Department of Agriculture records from previous and subsequent journeys
- Records from the registered premises
- Report from an industry consultant.

Before this consignment this exporter had sent a total of 563 cattle to China in two consignments with no mortalities reported. Principle International Pty Ltd was issued an export license on 23 January 2012 and this series of three consignments of cattle from Melbourne to China by air were their first livestock exports. Between January 2007 and this consignment 11 exporters have exported a total of 12,616 cattle to China by air with no mortalities.

Investigation Findings

Preparation in the Approved Premise

Cattle in this consignment were wagyu heifers weighing between 218 kg and 301 kg. The cattle were sourced from five properties located in New South Wales, Tasmania and Western Australia. The cattle entered pre-export quarantine on 26 August 2013. There were no reported health issues while in pre-export quarantine.

During the quarantine period the cattle were given long acting tetracycline as a precaution against leptospirosis and a treatment for internal and external parasites. They also received a booster vaccination for infectious bovine rhinotracheitis. These treatments were in compliance with the importing country requirements and were administered in accordance with the label directions. In addition the cattle were tested for akabane, bluetongue, bovine viral diarrhoea, enzootic bovine leucosis, enzootic haemorrhagic disease, and paratuberculosis with negative results, in compliance with the importing country requirements. All cattle exported were confirmed less than six months pregnant by a veterinarian accredited under the national cattle pregnancy diagnosis scheme.

A Department of Agriculture veterinary officer inspected the cattle in pre-export quarantine on 26 September 2013, and no cattle were rejected at his inspection. The AAV also inspected the cattle on 26 September 2013 and confirmed the cattle were clinically healthy and free from any evidence of infectious or contagious disease. No cattle were rejected at this inspection.

Loading of the aircraft

The cattle were transported from pre-export quarantine to Tullamarine International Airport by truck, which took approximately 45 minutes. On arrival at the airport the cattle were loaded into 35 single tier wooden crates with between six and nine animals in each crate. Crate loading commenced at 11 pm and finished at 3.30 am on 27 September 2013. Loading the aircraft commenced at 6.45 am and was completed at 8.30 am. On completion of loading all documentation including the *Special Load Notification to Captain* was provided to the airline. This form confirms the captain was aware live animals were being carried. The flight departed at approximately 8.40 am.

Crates

All crates used in this consignment were single tier wooden crates. The crates met the recommendations of the *Best practice design of crates for livestock by air* (Hogan and Willis, 2009). These recommendations were based on research completed by Meat and Livestock Australia and Livecorp in 2009 and are used as the standards for livestock crates in Australia.

Load plan

The department requires cattle loaded in the lower cargo compartment to be given an extra 10% space above the minimum ASEL requirement. The exporter supplied the department with a load plan which met this requirement. The cattle were loaded into the crates in accordance with this load plan, confirmed by the Department of Agriculture veterinary officer. The exporter advised that they verbally communicated the load plan requirements to the airline. However, the final loading of the aircraft was determined by the airline and was different from the load plan supplied to the department by the exporter. As a result of this, six of the nine crates in the lower hold (including the two crates where the mortalities occurred) met the stocking density requirements specified in

ASEL but did not meet the conditions of approval of an extra 10% space above the minimum ASEL requirement.

The load report shows that there was no other cargo on board, however two containers carrying spare parts were loaded in the last pallet position at the rear of the lower hold. These containers of spare parts are routinely carried by the airline when travelling to offline airports such as Darwin and Harbin, and were also carried on the two previous consignments. When these containers are loaded side by side there is only a small gap on each side of the fuselage (body of the aircraft). The tops of the containers are within a centimetre of the roof of the hold. In the opinion of the industry consultant it is considered possible that placement of these containers could obstruct air flow resulting in reduced air movement in the aircraft hold.

The load plan for this consignment was similar to the two previous consignments completed by Principle International Pty Ltd. The lower deck cargo compartment was loaded the same way on both previous consignments that were completed without incident.

Conditions in flight

ASEL does not require an AAV or accredited stockman to be on board, however a stockman travelled with the cattle on this flight. The presence of a stockman onboard enabled monitoring of animals in the main hold; access to the lower hold is not possible during the flight. No details of the in-flight monitoring of animals were provided by the stockman.

The airline records indicate that prior to departure there were no Environmental Control System (ECS) issues. During the flight there were no ECS performance defects and all air conditioning packs remained on high flow for the duration of aircraft operation including while connected to the auxiliary power unit during the technical stop in Darwin.

After completion of the flight the ECS was tested before departure from Harbin and further testing was completed in Brussels while the aircraft was in overnight transit. Both tests confirmed the ECS was functioning normally.

Mortalities

All the cattle loaded in crates in position 31P and 32P on the lower deck (shown at attachment 1) died. Information available from the Heilongjiang Entry-Exit Inspection and Quarantine Bureau indicates the mortalities occurred as a result of dehydration and suffocation.

Conclusions

A definitive cause of the mortalities was not determined from this investigation. From the information available inadequate ventilation in the region of these two crates causing increased temperature, humidity, carbon dioxide and ammonia levels is suspected as the most likely cause of the mortalities. However an underlying cause for the reduced ventilation was not determined.

The investigation also found that the exporter load plan approved by the department is not always provided in a hard copy form to the airline.

Actions

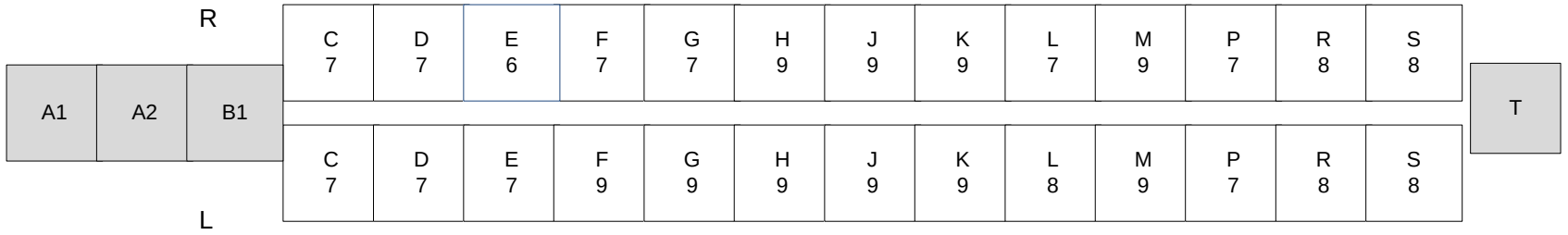
Following this incident the exporter has not exported any animals.

References

Hogan, L and Willis, G 2009, *Best practice design of crates for livestock by air.* Report by E.A. Systems Pty Ltd for project W.LIV.0261, Meat and Livestock Australia, Canberra (www.mla.com.au/Research-and-development/Final-report-details?projectid=14974)

ATTACHMENT1- Load plan and mortalities

UPPER DECK



NOSE **LOWER DECK** **TAIL**