

Summary

On 7 November 2013, 112 sheep were exported by air from Perth to Kuala Lumpur by Independent Livestock Services. There were 44 mortalities during the flight, a mortality rate of 39.3 percent. This exceeds the reportable mortality level for sheep of two percent as prescribed by the *Australian Standards for the Export of Livestock* (ASEL).

The investigation found that the airline's explanation of inadequate ventilation in the forward cargo hold due to an intermittent defect is the most likely cause of the mortalities.

The department approved subsequent consignments subject to the following additional conditions:

- written confirmation from the aircraft operator that the cargo hold has a suitable Environmental Control System for the shipment being tendered for carriage and
- that animals are exported using two double tiered crates and two single tiered crates only.

As of 24 December 2013 seven consignments had been exported with no mortalities reported.

Introduction

On 7 November 2013, 112 sheep were exported by air from Perth to Kuala Lumpur. There were 44 mortalities during the flight, a mortality rate of 39.3 percent. This exceeds the reportable mortality level for sheep of two percent as prescribed by the *Australian Standards for the Export of Livestock* (ASEL). The department requested information from the exporter and the airline to investigate the cause of mortalities and to determine if any action is required to reduce the likelihood of a recurrence. Both the airline and the exporter provided all the information requested.

The exporter of this consignment is experienced in the export of sheep by air and has a history of low mortality. Between September 2006 and November 2013 this exporter has exported 18,230 sheep to Malaysia by air in 174 consignments, using the same airline. During this time two mortalities were recorded. This is the first reportable mortality event for this exporter.

Investigation findings

Pre-export preparation

Sheep exported in this consignment were a mixture of dorper crossbred and merino wethers and rams with approximately 15 mm of wool. The sheep were sourced from four properties in Western Australia and assembled at one premises on 21 October 2013. There were no reported mortalities or health issues at the premises during this period. Before export, the sheep were administered a registered parasite treatment to meet importing country requirements. The product was administered in accordance with the label directions.

An Australian Government Accredited Veterinarian (AAV) inspected the sheep on 7 November 2013 and confirmed the sheep were clinically healthy and free from any infectious or contagious disease at the time of export. No sheep were rejected at this inspection.

Loading onto the aircraft

The sheep were transported to Perth International Airport by truck; this took approximately 45 minutes. The sheep arrived at 10.49 am and were unloaded between 11.00 am and 11.53 am. A Department of Agriculture veterinarian was present during unloading and inspected the sheep. No sheep were rejected at this inspection.

After unloading from the truck, the sheep were loaded into one single tier metal crate and three double tiered metal crates. The floor area of each tier of the crates was 4.05 m². Sixteen sheep were loaded onto each tier giving an average pen area of 0.253m² per head. The minimum pen area requirements specified in ASEL are determined by live weight. The average live weight for sheep in

each crate was 34 kg, 41 kg, 42 kg and 42 kg. Stocking density requirements specified in ASEL were met.

After loading into the crates the sheep remained at the warehouse until 3.33 pm when they were moved to the aircraft. The crates were loaded in the front hold of the lower deck of the aircraft; no other cargo was loaded in this hold. There are five crate positions available in this hold and four positions were used. The flight departed at approximately 4.20pm. The ambient temperature at Perth airport at 3 pm on 7 November 2013 was 25.9°C (BOM).

After loading was completed the captain signed the *Special Load Notification to Captain*. This form confirms the captain was aware that live sheep were being carried.

In Flight

The airline reports indicate that during the flight a malfunction message in the ventilation system was generated. There were no in flight actions taken in response to this message. There is no access to the lower cargo hold during the flight and no monitoring of environmental conditions.

Mortalities

Upon arrival in Kuala Lumpur around 10.00 pm on 7 November 2013, 44 sheep out of 48 in the top tiers of the three double crates were found dead. A post mortem was performed by the Malaysian Quarantine and Inspection Services on three of these sheep. The post mortems were performed the following day at 5.30 pm. No cause of death was identified due to decomposition of the carcasses.

The remainder of the sheep in the consignment are reported to have arrived in good condition.

Cause of Mortalities

A definitive cause of death was not identified. From the information available inadequate ventilation in the forward cargo hold causing increased temperature, humidity, carbon dioxide and ammonia levels is suspected as the most likely cause of the mortalities.

Reports provided by the airline indicate that the air conditioning system was functioning normally before loading the sheep and on arrival in Kuala Lumpur. The underlying cause for inadequate ventilation is reported by the airline to be an intermittent defect in the air conditioning system during the flight.

Conclusions

Inadequate ventilation is the most likely cause of the mortalities. The high mortality of sheep in the top tiers of the crates is consistent with inadequate ventilation causing increased temperature, humidity, carbon dioxide and ammonia levels during the flight.

There was no significant differences identified in the preparation and procedures used for this consignment compared with previous consignments.

Actions

For the seven consignments following this incident the department has required the following:

- Written confirmation from the aircraft operator, that the lower cargo hold has a suitable Environmental Control System for the shipment being tendered for carriage.
- Animals to be exported using two double tiered crates and two single tiered crates only.

In addition the airline has undertaken not to deploy any aircraft with an air conditioning defect such as occurred on this flight, when there is a live animal shipment booked.

As of 24 December 2013 seven consignments had been exported with no mortalities reported. Based on this and the findings of the investigation these additional conditions have not been

applied to consignments after 24 December 2013. Between the 24 December 2013 and 24 February 2014, 1100 sheep have been exported in 11 consignments with no mortalities recorded.

As a result of this and other air mortality events the department is consulting with industry to develop a management plan to address the risks identified for the transport of livestock by air.

References

Perth Airport, Western Australia, November 2013, Daily Weather Observations. Australian Government Bureau of Meteorology (BOM)

<http://www.bom.gov.au/climate/dwo/201311/html/IDCJDW6110.201311.shtml> viewed 6 December 2013