



## **Investigation into reportable sheep mortality level on sea voyage from Fremantle, to Jeddah, Saudi Arabia, October 2007.**

### **1. Purpose**

To report on the investigation into the cause of the mortalities in sheep exported by sea to Saudi Arabia, and to make recommendations with the objective of reducing the likelihood of a recurrence.

### **2. Summary**

The cause of the reportable level of mortalities was investigated. For this consignment, there were 1,142 mortalities of the 55,520 sheep loaded which equates to a mortality rate of 2.06%. There was only one consignment of sheep on the vessel.

The likely cause of the mortalities rate on this voyage was enteritis (consistent with salmonellosis).

### **3. Background**

The investigation into the cause of the mortalities was completed by reviewing the following information:

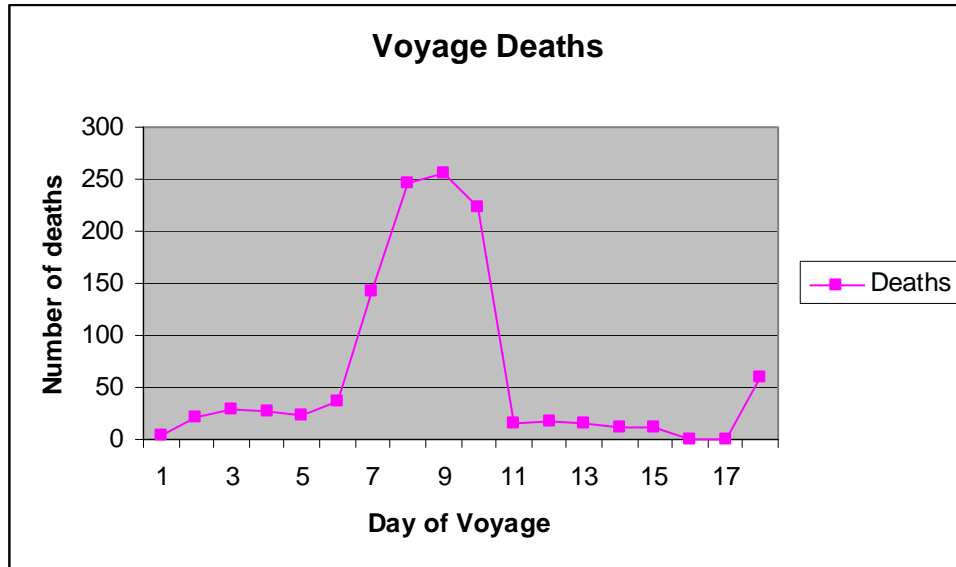
1. AQIS accredited veterinarian's (AAV) end of voyage report.
2. AAV Daily Reports
3. Report from the exporter.
4. Records from the registered premises.
5. Report from the AQIS certifying veterinarian.

**Table 1: Chronology of Events**

<b>Dates</b>	<b>Day of Voyage</b>	<b>Action</b>	<b>Cumulative Voyage Mortality Total</b>	<b>Cumulative% Mortalities</b>
	-	Assembly of sheep	-	-
11/9/07	-	NOI/ CRMP submitted	-	-
5/10/07	-	NOI/CRMP approved	-	-
6/10/07	-	55,520 sheep loading in Fremantle	-	-
7/10/07	1	4 mortalities	4	0.007%
8/10/07	2	22 mortalities	26	0.05%
9/10/07	3	29 mortalities	55	0.1%
10/10/07	4	27 mortalities	82	0.12%
11/10/07	5	24 mortalities	106	0.2%
12/10/07	6	36 mortalities	142	0.3%
13/10/07	7	142 mortalities	284	0.5%
14/10/07	8	246 mortalities	530	0.95%
15/10/07	9	255 mortalities	785	1.4%
16/10/07	10	224 mortalities	1009	1.8%
17/10/07	11	16 mortalities	1025	1.85%

18/10/07	12	18 mortalities	1043	1.88%
19/10/07	13	16 mortalities	1059	1.9%
20/10/07	14	12 mortalities	1071	1.9%
21/10/07	15	11 mortalities	1082	1.95%
22- 24 /10/07	16	60 mortalities	1142	2.05%
<b>TOTAL</b>			<b>1142</b>	<b>2.05%</b>

**Chart 1: Mortalities per day of Voyage**



**Table 2: Mortality by deck**

DECK	1	2	3	4	5A	5B	6A	6B	7	8	9
DAY	0	0	0	0	0	0	0	0	0	0	0
1	1	1	0	0	2	0	0	0	0	0	0
2	0		3	2	5	0	3	3	0	1	5
3	1	3	4		3	2	7	5	0	0	4
4		3		1	4	4	4	4	0	4	3
5	2	1	2	2	2	2	4	2	2	1	4
6	1	1	3	1	3	7	11	0	0	3	6
7	0	0	0	0	5	103	7	5	0	20	2
8	1	2	0	1	2	191	8	0	0	34	7
9	2	1	3	1	4	148	7	2	2	78	7
10	2	1	3	3	3	89	1	2		115	5
11	1	0	0	0	0	6	0	0	0	8	1
12	1	0	0	0	0	7	1	1	0	8	0
13	0	1	0	1	0	6	0	0	0	7	1
14	1	0	1		0	4	0	0	0	6	0
15	0	0	0	1	0	4		0	0	5	1
16	0	0	0	0	0	0	0	0	0	0	0
<b>TOTAL</b>	13	14	19	13	33	<b>573</b>	53	24	4	290	46
<b>% of the total Mortalities (1082)</b>	1.2	1.3	1.8	1.2	3.1	<b>53</b>	4.9	2.2	0.4	26.8	4.3

\* NB A further 60 mortalities occurred during discharge on days 16 and 17 (22-23 October 2007) bringing the total number of mortalities to 1142. The deck location is not available.

## 4. Findings

### 4.1 Registered Premises

The sheep exported from Fremantle were present at the registered premises from 26 September 2007 till loading on the 6 October 2007. The records of the registered premises indicated 96 mortalities (in total) over the preparation period.

The record of wharf rejects indicated there were 175 rejects. The main reasons for rejection at the wharf were: lameness, eye problems, infections and 'scabby'.

### 4.2 Loading

The records indicate the sheep were loaded in accordance with Australian Standards for the Export of Livestock (ASEL).

### 4.3 Journey

The climatic condition for the sheep decks were as follows

**Table 3: Climatic conditions:**

Date	Dry bulb (°C)	Wet bulb (°C)	Humidity (%)	Daily water consumption (L)	Daily weather conditions from daily reports
7/10/07	22.7	19.3	68.3%	2L	No weather on reports on daily reports.
8/10/07	23.7	20.2	70.1%	2.9L	
9/10/07	23.2	20.7	64.5%	3.1L	
10/10/07	26.6	21.6	64.4%	3.4L	
11/10/07	29.1	25.8	75.6%	3.5L	
12/10/07	30.7	27.2	75.1%	4.0L	
13/10/07	31.1	28	79.1%	4.1L	
14/10/07	31	28.2	79.2%	4.1L	
15/10/07	31.9	28.5	76.9%	4.1L	
16/10/07	31.8	28.5	77.9%	4.25L	
17/10/07	31.7	27.8	79%	4.1L	
18/10/07	31.6	28.7	79%	4.1L	
19/10/07	30.3	26.9	76.6%	3.9L	
20/10/07	31.2	28.2	78.8%	4.1L	
21/10/07	32.8	29.8	79.6%	5.2L	

No data available for day 16 and 17.

The reportable mortality trigger for a long haul sheep voyage is 2 per cent. The reportable mortality level was triggered on 24/10/2007.

An outbreak of disease occurred in two lines of sheep on decks 5B and 8 from day 5 until day 11. The disease presented as sudden death or diarrhoea/dehydration. The clinical signs and post mortem are consistent with an outbreak of enteritis (consistent with salmonellosis).

### **3 AMSA evaluation of the vessel upon return to Australia**

This incident was not reported to AMSA as the master's report indicated a mortality level 1.96%. However, due to the high level of mortality, AMSA did follow up the issue during the subsequent preload inspection. During the subsequent preload inspection, no issues with the livestock service were noted that would have contributed to the event.

### **4 Conclusion**

The cause of the sheep mortalities on board the vessel was an outbreak of enteritis (consistent with salmonellosis) on two decks.

### **5 Recommendations**

Research and Development is undertaken to seek additional information whether the ASEL are appropriate for sheep prepared for export from July to December to ensure are

- . adequate adaption to onboard shipboard ration and
- . adequate to detect a potential outbreak of enteritis (consistent with salmonellosis).

### **6 Actions**

The investigation report was forwarded to the Livestock Export Standards Advisory Committee.

The following consignments had additional space allocated per animal. The amount of additional space is included in the column on the right. The consignment line in bold within the table were exported to Saudi Arabia. The importing country requirements for Saudi Arabia normally include 10 per cent additional space.

Outcome of the voyage with additional conditions is as follows:

<b>Number loaded</b>	<b>Number mortalities</b>	<b>Mortality rate</b>	<b>Additional space</b>
<b>65,364</b>	<b>385</b>	<b>0.59%</b>	<b>15 per cent</b>
4,028	8	0.2%	10 per cent
14,035	71	0.51	10 per cent