


IMPETUS

A VETERINARY PERSPECTIVE OF THE SEA TRANSPORT SUPPLY CHAIN



Dr Renee Willis

1

IMPETUS

My Background:

- Graduated from Sydney University in 2005.
- Worked in rural mixed practice and then as an equine veterinarian.
- Began working on livestock carrier vessels as an Australian Government Accredited Veterinarian (AAV) in 2015.
- Completed a PhD project through Murdoch University in 2021 investigating animal welfare indicators for the Australian livestock export supply chain.
- Worked with UN Food and Agriculture Organization in Bangkok on African swine fever emergency responses 2021-2023
- Now work as a researcher and animal welfare consultant with Impetus Animal Welfare.



2

Australian Export Statistics - 2024



► **Sea transport to 16 COUNTRIES**

- **763,411 CATTLE**
- **4,628 BUFFALO**
- **418,724 SHEEP**

3

AUSTRALIAN LIVESTOCK EXPORT ROAD MAP



The diagram illustrates the export process: **PRODUCER** (Farm) → **EXPORTER** (Livestock) → **TRANSPORT** (Ship/Airplane) → **FEEDLOT** (Quarantine) → **DISCHARGE** (Port) → **TRANSPORT** (Truck) → **FEEDLOT** (Quarantine) → **TRANSPORT** (Truck) → **PROCESSING** (Abattoir) → **CONSUMER** (Retail).

4

IMPETUS

The Australian livestock export industry involves the transport and intensive management of large numbers of animals. A single shipment of cattle can range between 1,500 – 15,000 head and a consignment of sheep can involve up to around 50,000 animals per shipment.

- The supply chain has many stakeholders - extends from farms here to consumers in importing countries.
- Livestock exports are heavily regulated industry - Regulatory framework: Australian Standards for the Export of Livestock (ASEL); and the Export Supply Chain Assurance System (ESCAS) after discharge from the vessel.


Along the supply chain, livestock are transported both by land and sea and often across hemispheres and environmental seasons. Animals are mixed with others from various sources, they encounter multiple facilities, changes in environmental conditions, feeding practices & handling techniques.

Events at the beginning of the supply chain, whether they are positive or negative, will often trickle down and affect welfare for the rest of the journey. Although it's our human tendency to look at individual areas of the supply chain separately, from an animal perspective, we should be taking a whole of supply chain approach to welfare assurance.


5

IMPETUS

Where veterinarians fit in...



PLANNING → SOURCING → PREPARATION → SEA TRANSPORT → FEEDLOT/FARM → ABATTOIR → CONSUMER



Veterinarians from the public and private sector work in all areas of supply chain, not just on vessels. They provide professional services for animal health and welfare, regulatory compliance & biosecurity.

6

Planning

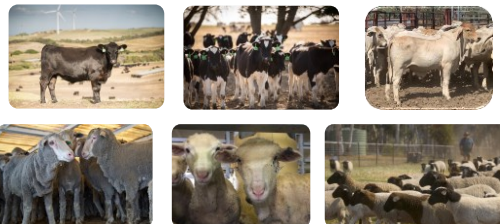
1. Commercial contract
2. Import Permit
3. Importing Country requirements
4. Legislation and Regulation
 - ASEL
 - ESCAS
 - Approved Arrangements
 - Approved Export Program
5. ANIMAL WELFARE: risk assessment and mitigation



7

Sourcing of livestock

IMPETUS



8

Sourcing of livestock

IMPETUS

- When sourcing livestock, they must be appropriate for:
- the demands of the foreign consumer and the market
 - The importing country biosecurity requirements
 - the journey they will undertake
 - the facilities and infrastructure available during transport and at their destination
 - disease status and vaccination history
 - market availability

9



ON FARM

10



LAND TRANSPORT

Land transport from farms to registered pre-export premises will often cover vast distances. Transport standards are the same as domestic land transport requirements.

11



LIVESTOCK PREPARATION

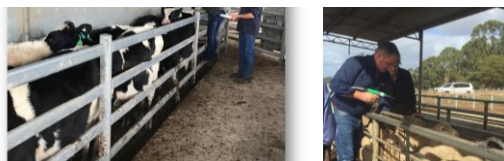
Livestock are assembled in registered pre-export facilities close to the port of departure

12

Livestock Preparation



13



FIT TO LOAD INSPECTIONS

Australian Government Approved Veterinarians who are privately engaged by the exporter to perform individual inspections and protocols for importing country requirements. Consignments are also inspected by Government vets before export.

14

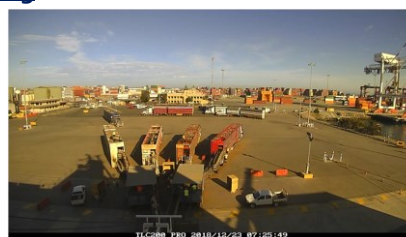


REJECTION CRITERIA

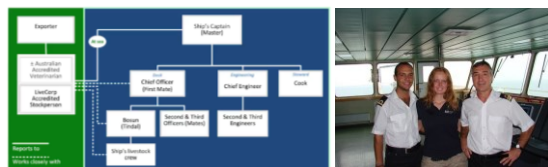
15

Loading

IMPETUS



16



SHIPBOARD PERSONNEL



Source: ABC Rural

17

IMPETUS

The Master or Captain is the highest authority on board, responsible for the overall safety of the ship, crew and cargo, including the livestock.

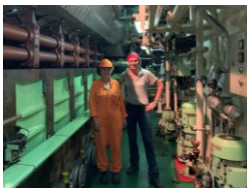
The chief officer C/O is second in command and the operations manager. The C/O oversees the cargo, including daily livestock management tasks like feeding, ventilation, and waste disposal.

The Bosun is the senior deck crew member who directly supervises the livestock crew and deck operations act as the key point of contact for day-to-day stock issues like feeding and cleaning schedules.

The livestock crew are typically part of the ship's deck team and perform routine tasks such as feeding, watering, cleaning, and general livestock care. These crew members may hold maritime titles such as Able Seamen AB or Ordinary Seamen OS

The ship's engineers ensure ventilation systems and water supplies function correctly for mechanical issues affecting animal welfare. Vets and stock handlers liaise with the Chief Officer to involve the engineering team

18



IMPETUS

INDEPENDENT OBSERVERS

In May 2018, the Australian government introduced the independent observer (IO) program. IOs don't take an active role in animal management during the voyage, they "play an assurance role within our regulatory system. They monitor, review and/or audit exporter arrangements on-board livestock export vessels".

19

Daily Inspections

IMPETUS



20

Daily Inspections

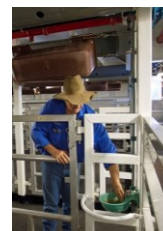
IMPETUS



21

Feed and Water Access

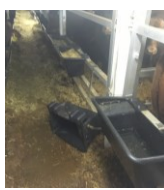
IMPETUS



22

Feed and Water Access

IMPETUS



23

Daily Inspections

IMPETUS

All livestock are inspected at least twice daily by accredited stock handlers and possibly a veterinarian. Stock handlers are taught to use a systematic approach to observing all livestock for signs of ill-health or poor adaption to the pen environment.

Stockpersons and vets monitor the environment in all livestock pens and submit a daily report to the exporter and Australian government detailing the temperature and humidity, ventilation and air quality, manure pad management, feed and water quality and access on each deck. Animal observations related to responses to sea swell, competitive feeding behaviour, general demeanour and panting score are also reported along with all individual health issues, treatments, mortalities and results of post-mortem examinations.

24

Ventilation and Air Quality

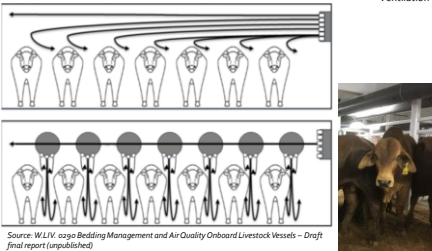


Source: <https://www.vroon.nl/Fleet>

IMPETUS

25

Ventilation and Air Quality



Source: W/LIV. *o2go Bedding Management and Air Quality Onboard Livestock Vessels - Draft final report (unpublished)*

Tunnel Ventilation

Ducted Ventilation

26

Manure Pad Management



Dry Firm - Tacky Wet

IMPETUS

27

Washing Down Cattle Decks



IMPETUS

28

Livestock Factors



Individual livestock factors can have a huge impact on the ability to adapt to voyage conditions and cope with changes in management and environment. The ewe in this pen is carrying more body condition and a heavier fleece than her pen mates and is responding much to more the heat and humidity encountered while crossing the equator.

IMPETUS

29



HEALTH TREATMENTS

There are hospital pen spaces designated on each deck and ASEL requirements stipulate the type and amount of medication available for each voyage. All treatments, mortalities and post-mortem results are reported daily.

30



HEALTH INVESTIGATIONS

Euthanasia: can be performed with a captive bolt (following xylazine sedation in cattle)
Carcass disposal: in the open ocean in accordance with Marine Pollution (MARPOL) regulations, 100 nm from land and not in special marine areas such as Persian/Arabian Gulf, Red Sea or Barrier Reef.

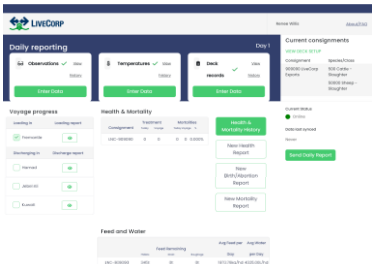
31



REPORTING REQUIREMENTS

As well as daily reporting, an End of Voyage report is submitted to the Australian government with an overview of the voyage, health and welfare of livestock and performance of the vessel and crew.
IO reports are made by the Independent Observer to the regulator
Emergency situations are reported using a 'notifiable incident report' within 12 hours of the event.

32



This is a screenshot of the home page of the 'LIVECollect' reporting tool for Daily and End of Voyage reporting.

33




RESEARCH & DEVELOPMENT


Veterinarians and accredited stockpersons are frequently involved in R&D projects to improve animal health and welfare throughout the supply chain.

34


Discharge




Panjang Port, Indonesia



Port of Eilat, Israel



Hai Phong Port, Vietnam



35

Discharge

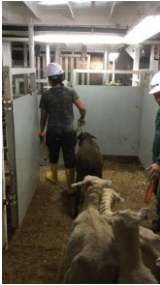


Muscat Port, Oman



36

Discharge



IMPETUS

Pilot sheep are often used to get the flow of livestock moving during discharge

37



38

Destination Market – Feedlot / Farm

IMPETUS



Receival Feedlot, Vietnam



Receival Feedlot, Oman

39

Destination Market - Abattoir

IMPETUS

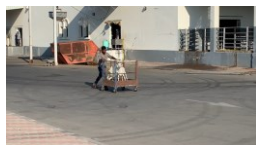


Wet market Lampung, Indonesia



Muscat Municipal Slaughterhouse, Oman

40



41

IMPETUS

Thank you...



CARE • CUSTOMER • COMMUNITY



Australian Livestock Exporters Council



42