ASEL REVIEW STAGE 2 ISSUE PAPER 2018

Submission by a group of Australian Government Accredited Veterinarians

The follow group of Australian Government Accredited Veterinarian (AAVs), and other veterinarians have prepared this submission for the ASEL technical advisory committee as requested through stage 2 of the ASEL review process:

Editors

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AAVs who contributed directly/indirectly or responded to communications

- Dr Renee Willis
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- Dr Glenn Kenneally
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- Dr Simon Bell
- Dr Peter Lynch
- Dr Bob Nickels
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- Dr Rob McPherson
- Dr Ian Bradshore
- Dr Peter Arnold
- Dr Colin Schrivner
- Dr Bryce Mooring
- Dr Tracy Sullivan
- Dr Bronte Sutton

Non-AAV large animal veterinarians who's clinic works on the periphery of the industry

- Dr Matt Peterson

The ASEL Review documents (Issue paper and reformatted ASEL) to help with this submission can be found at:

https://haveyoursay.agriculture.gov.au/review-asel

Contents

Scope

The following document provides opinions and thoughts from the AAVs and veterinarians listed. Each section is not a full representation of each submitting contributor and where vastly differing opinions were received, they are listed. The number of opinions is not representative of the number AAVs making comments as similar comments have been grouped.

The document is not exhaustive of all AAVs, and this group recommends the ASEL committee interviews and engages directly with AAVs as a key stakeholder group which is currently not represented by any industry or policy body.

AAVs are best placed to review the operational effectiveness or practical application of research and proposed monitoring tools. AAVs have a unique skills base and have a thorough understanding of the structure of international trade and how this relates to Australia's animal health system. They are regulated by both State/Territory and Federal legislation and receive training through the APAV and AAV programs. AAVs are a group whose profession dictates that animal welfare is paramount and are well placed to report if proposed or implemented changes are effective in improving animal health and welfare.

Method

This submission was developed through input from AAVs and other veterinarians associated with the livestock export industry.

Telephone conversations were used initially to get a general indication of AAV's willingness to contribute. An email was sent to all currently registered AAVs (94) and other veterinarians asking for input into the working draft document.

A follow-up email, with a link to the preliminary document, was sent to all currently registered AAVs asking for further input and to confirm if the each agreed to have their name included on the document.

Google docs were used to create the submission as multiple people can edit, comment, or view the document at the same time once. Contributions, either through written or verbal communications, have been included in the submission. If there were vastly differing opinions, these were listed under the relevant questions. A scientific approach has been taken and, where appropriate, support by individual experiences has been included.

AAVs are not currently represented by a specific industry or professional body, as a result, each AAV's time has been constrained by work commitments, as a group they have not had the resources to review all scientific literature (both peer review and grey) to identify appropriate references.

Relevant scientific references to research may be found in the Livecorp and ALEC submissions.

Definitions

- **AAV:** refers to Australian government Accredited Veterinarians
- **Class:** the purpose for which the animal is being exported (Breeder, Feeder, Slaughter)
- **DAWR:** Department of Agriculture and Water Resources may also be referred to as “the department.”
- **EAN:** Export Advisory Notice
- **EOV:** End of Voyage
- **Industry:** refers to the livestock export industry as a whole.
- **IO:** Independent Observer
- **POO:** Property of Origin
- **RP:** Registered Premises
- **Type:** a characteristic that the can define a group of animals (Breed, Sex, etc)

Issues paper questions

3 Reporting and investigations

3.1 Mortalities

1) Should the current reportable mortality rates (RMR) be revised and, if so, how?

Yes

The measure should be refined to use a mortality incidence rate rather than a simple raw percentage.

- An incident rate includes a time component in the calculation and allows fair assessment between voyages of different lengths and consignments of different sizes
- An incident mortality rate is the number of mortalities in the population at risk in a given period
- An animal-time unit that may be suitable for the export industry is animal-day and reported as the number of mortalities per 1000 animal days
- An appropriate formula to calculate the end of voyage mortality incident rate is Eq 4.3 from Veterinary Epidemiologic Research 2nd Edition, Dohoo et al
- Progression towards a more automated data reporting environment will make it viable for standard errors and confidence intervals around mortality incidence rates to be calculated automatically.

The following points also need consideration:

- Investing in comprehensive and ongoing epidemiological investigation of voyage mortalities (and morbidity) to accurately identify drivers of poor animal welfare outcomes and assist in effective mitigation and management strategies is far more advantageous than simply reducing the reportable mortality rates to an arbitrary number (1%)
- ASEL should describe the objectives underlying the requirement for reporting of mortality events above a threshold level. It is important to provide clarity and definitions to the industry and regulator.
- Objectives should identify events where mortalities exceed the expected mortality threshold to help determine:
    - if there are systematic issues common across exporters that increase the risk of high mortality events (identification of systematic industry issues allows development of appropriate preventative or control measures to reduce the risk of future events)
    - if individual operators continually fail to implement appropriate risk mitigation strategies, have poor processes, are careless, or put animals at undue risk resulting in increased mortality events
    - if there were uncontrollable circumstances that led to a random event, hence risk mitigation would have little influence

    - if a species, class, or type have been over-represented in mortalities within a shipment or consignment

- Species, class, and type must be considered when reviewing mortality measures. Is a single mortality threshold appropriate across different class and type groups? For example, is the risk of death the same for breeder dairy heifers and slaughter Bos indicus bulls on a voyage to Russia?
- If the use of a simple mortality percentage is continued, the current 1% is acceptable reflecting the industry long-term average of 0.75%. However, a decrease in reportable mortality to 1% for sheep will likely result in an increase in mortality investigations. This is counterproductive unless driving factors for mortality are reliably identified and effectively mitigated. Additionally, is the regulator equipped with the resources and technical capability to effectively review an increased number of events?
- There needs to be clarity on how ASEL will function in this regard, will there be a total mortality percentage for the voyage that instigates an investigation, or will there be real-time reporting and monitoring of events as they occur?

2) At what level of mortality should a notifiable incident be declared, thereby triggering an investigation?

Expected mortalities

- The mortality incident rate for each species and class of livestock cover by ASEL should be determined based on land-based production systems similar to the shipboard environment (feedlots etc) and/or a representative of the sourced livestock.
- It could then be determined if the shipboard mortality thresholds should be the same, higher or lower than the land-based mortality incidence rate for each species and class of live-stock
- Initially, the threshold should be less than the current ASEL threshold, once converted to an incidence rate, or the land-based mortality incident rate
- These land-based incidence rates should be used to compare with the end of voyage mortality incidence rate or used to calculate the expected number of mortalities for the voyage length and then compared to the actual number of voyage mortalities
- If the voyage mortality incidence rate is greater than the determined threshold, this should be a notifiable incident and trigger an investigation with objectives discussed in question 1

Real-time assistance

- Daily incidents should be included.
    - at a higher rate (say 0.5%)
    - However, be aware that mortality rates do – and are expected/anticipated to - vary during the voyage: deaths start on day 2, peak at about days 5-7 then fall to lower numbers for the rest of the voyage.

    - There may be a mortality peak at the end of the journey as live-stock that have not responded to earlier treatments are euthanised in preparation for discharge.

- An in-voyage trigger level could be assigned so, once exceeded, pro-active, real-time assistance, intervention and/or an epidemiological investigation could be instigated
- This could be followed up with further investigation if competence issues, system failures or compliance issues are identified during the in-voyage assistance
- A higher in-voyage trigger level could be used for a mandatory investigation specifically looking to identify system failures

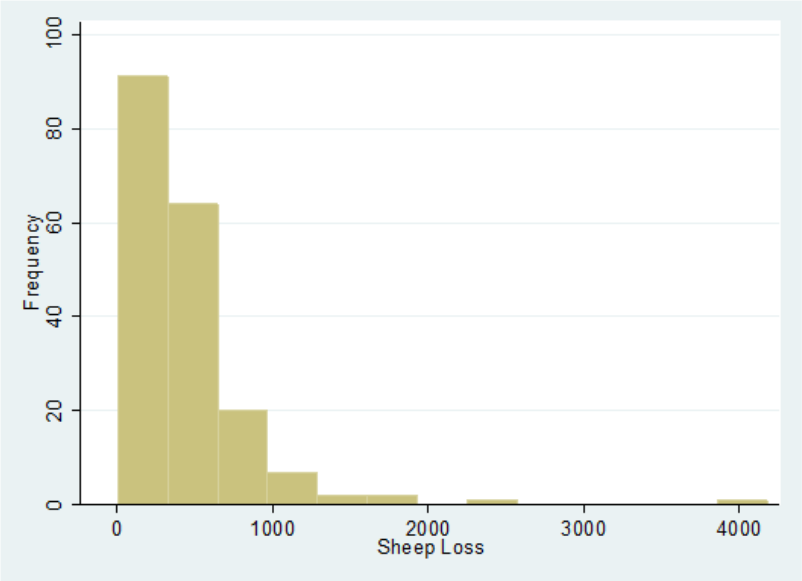
3) Should there be a relationship between the average mortality rate and the RMR and should it be reviewed annually?

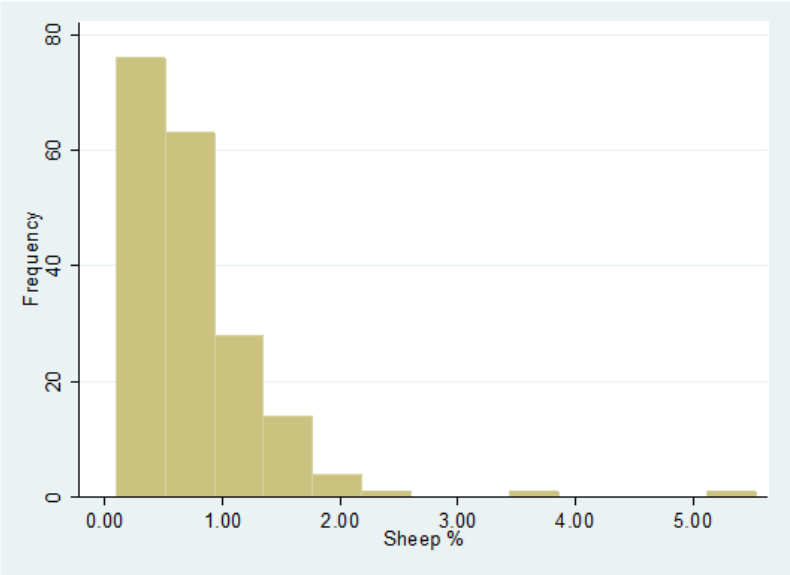
Opinion 1:

No

Distributions, probability, and expectations of mortalities

- Voyage mortality rates are not normally distributed due to the nature of what it is being measured. They have an inverse distribution. Therefore, ***median*** values need to be used when describing the measure of central tendency. Using the mean ("average") overestimates the true measure of central tendency in this distribution because it is heavily skewed by the infrequent outlier events.





- Industry minimum standards as well as specific risk mitigation strategies aiming to reduce the probability of high mortality events occurring are recommended. These approaches do not reduce the risk to 0. Even with very strict regulations in commercial passenger plane flights there are still occasional crashes. Expectations that there will never be a large mortality event because of the risk management applied to livestock exports are misguided.
- There will always be a background variation in mortalities, and we can expect some voyages to have mortality incident rates above a threshold simply by chance. The challenge for the regulators and the industry is to identify when there are systematic or exporter specific practices that increase the chance of a large mortality event occurring
- There needs to be more discussion about the expectations placed on the industry and to quantify how this relates to land-based production systems in Australia
    - Should the shipboard measures be the same or better than the land-based measures?
- What average? Between or across days; between or across pens; between or across decks; between or across classes; between or across seasons; between or across voyages; between or across ships; between or across AAV; between or across …
- What benefit could there be if the current mortality averages are below the 1% RMR already?
- Data on daily incident peaks linked to geographic location (e.g. Straits of Hormuz/ Gulf of Oman) would be of more value.

Opinion 2:

Yes

- The objective is to improve outcomes with time. The Investigation should be to identify issues and rectify/improve.
- The relationship between average mortality rate and RMR may need to reviewed on a 5-year basis to account for industry improvements and changes.

4) What should be the stated purpose of an RMR, and what should be the consequence(s) of exceeding the RMR for a voyage?

Opinion 1:

See answer to question 1 for discussion on the purpose of mortality measures and the reason for requiring reporting. When the purpose of the mortality measure is clearly defined as described, this should allow the regulator, exporters and professional service providers information to review the consignment performance and animal welfare outcomes objectively and consistently.

Consequences should only be applied if the regulator cannot demonstrate that the event was simply due to chance, or that there was an increased risk of the event due to the individual exporter continually failing to implement appropriate risk mitigation strategies, having poor processes, or a careless approach putting animals at undue risk.

Opinion 2 & 3:

Current situation

- Industry and regulators must recognise that RMR's in the current form of notifiable incidents, place AAV's, stockpersons and vessel crew under extreme pressure and can be very detrimental to their ability to work cooperatively and in the best interests of the live-stock. It imposes unacceptable mental stress to people working in stressful, fatiguing and isolated environments, and often under circumstances in which they have very limited control over the outcome.
- The stated purpose of RMR's should, in order of priority: identify contributing factors, assist in mitigating further losses (in real time), support shipboard personnel during the crisis and lastly, identify competence issues, systemic failures and compliance breaches.
- The drive to not have a notifiable incident, through a mortality event, during a voyage can be detrimental to welfare outcomes as stockpersons, AAVs and shipboard crew can feel pressured to keep animals alive that would be better euthanised. This will be reduced if RMR is seen as a performance monitoring tool, not means for an investigation leading to disproportionate restrictions by the regulator
- The biological variation (type) in each consignment does affect the animal's risk. Having one figure for RMR by species does not reflect the risks and known tolerances within a species, or between various classes and types.
- Any epidemiological investigation of mortality should include reporting of the breed, sex, age, POO of a dead animal (they all have NLIS tags) and cause of death established by a post mortem examination. All this information should be routinely recorded. If records show that some breeds, types or classes have high mortality rates, this information can be used for future control measures.

Opinion 4:

- The RMR should:
    - provide early notification to DAWR that there may be a significant incident either occurring – or about to occur – during the voyage,
    - inform DAWR that a voyage-long problem has occurred – or not occurred,

    - provide data to monitor and benchmark other and similar voyages (and by whom???).
- Consequences of exceeding the RMR:
    - Get assistance/help and advice from DAWR
    - not prosecute as the first response
    - not prosecute/cancel permits because of irrelevant actions
    - stop finding scapegoats for DAWR inaction and or lack of support. [I have never been contacted by DAWR other than for 1 or 2 sheep miscount – 150 dead cattle didn't get a phone call.]
    - Repeated incidents or non-compliance with significant problems – prosecute to the level of removal of permit and restrict the changing of names and re-licensing.
- However, recognise: the permit/license export holder is not on the ship. They cannot make changes on board any more than a DAWR representative, or a land-based guru can. And certainly, they can't make it yesterday. The problem and solutions sit on the ship with the crew, vets, stockpersons etc.
- Consider also, that each trip tends to be very different for many different reasons.

5) Should the RMR also relate to classes of live-stock (within species), different areas of the vessel etc. as well as length of journey?

Opinion 1:

Yes – providing someone will make use of that data in the long-term.

*See answers for question 1-4 for more explanation

- Mortality measures should relate to species and class
- The mortality measure should be an incidence rate; this would inherently account for differences in voyage length and numbers of animals
- No - the current mortality measure should not be related to the vessel or different areas of the vessel etc.
- Start with simple improvements as above and develop complexity over time, improve the current measure for species and class, then incorporate type and other relevant groupings
- Post-voyage analysis of mortality measures can include other information collected on the voyage (such vessel area, treatments, type, POO) to provide information on species classes and areas of the vessel or voyage length.

Opinion 2:

- I consider that the extra voyage-time for a long-haul sheep voyage is irrelevant for an RMR as mortalities tend to be concentrated toward the first half of the voyage. Statistically, a short-haul voyage would have a higher daily rate. A reportable mortality event (based on a daily incidence rate) would be more useful.

- On-board recording and monitoring of the above data can be very helpful – especially class x season effects

6) Should the RMR be replaced by, or supplemented with, reportable levels for more general welfare indicators (e.g. see McCarthy Review report)? If so, what should the welfare indicators be and what should be the reportable level for each?

Opinion 1:

Yes - The mortality measure should be supplemented with additional information.

The mortality measure tells us broadly if there were significant issues faced by some animals during the voyage. This is useful to determine if there was undue risk to the animals resulting in a poor outcome. There are significant challenges in using such a crude measure to conclude more than this. Mortality measures give little to no information about the animal welfare of those still alive and only a little about the animals that died, that is they died, and this may or may not be related to poor welfare.

Daily mortality measures aid the AAV and/or stockperson to identify if there is an emerging problem through variation in day to day mortalities. Mortality measures have some additional use during a voyage to inform the department or exporter if there are significant issues currently being faced by some animals. E.g. if a sharp increase is seen in the number of mortalities and the mortality measure.

If welfare is to be assessed/measured, additional measures for this specific purpose need to be included. The indicators need to be based on scientific evidence and demonstrated to be robust in the application at an industry level. How this information is used by the regulator and industry needs to be decided upon before adoption.

There is a trade-off between spending time collecting information for post voyage analysis at the expense of real-time management of issues. If compliance is around the complete collection and not about outcomes, then data collection might come at the cost of real-time animal welfare management. Collection of very detailed information can impinge on the primary duty of the shipboard staff.

Opinion 2:

Morbidity is difficult to measure on sheep voyages accurately

Sick cattle are easy to identify and record

Opinion 3:

Ideally yes, although likely impossible to measure reliably. Measures such as % discharged lame, % discharged with pinkeye, % discharged with downgraded commercial value would be useful. % treated for various disease categories may be possible. There is a substantial risk that mandatory reporting and trigger levels may lead to under treatment, underdiagnosis and poorer welfare outcomes.

Opinion 4:

Interesting question. The Australian RSPCA includes the 5-F’s of freedom: Freedom from hunger and thirst; Freedom from discomfort; Freedom from pain, injury or disease; Freedom to express normal behaviours; Freedom from fear and distress. The RSPCA considers these freedoms will be better provided for if those who have the care of live-stock practice: caring and responsible planning and management; skilled, knowledgeable and conscientious animal management; appropriate environmental design; considerate handling and transport and humane killing.

The American Veterinary Association also includes the 5-Fs of animal welfare. However, in its outline, it includes *Good animal welfare requires disease prevention and veterinary treatment, appropriate shelter, management, nutrition, humane handling and humane slaughter.*

Animal welfare refers to the state of the animal; the treatment that an animal receives is covered by other terms such as animal care, animal husbandry, and humane treatment.[1]

None of these definitions or guides defines what 'animal welfare' is.

The McCarthy report and analysis of the information available and its recommendations are generally non-sensical. Dr McCarthy based the report upon reviews by Petherick; however, reviews show it was based upon pigs and poultry, unsupported mathematical calculations and the comment that there was no validation that it applied to sheep.

McCarthy recommends that voyages should be stopped when sheep are panting. Panting is a normal physiological response to increased temperature, the review does not consider 1 sheep, 1 pen, x%, deck location. Yes, sheep pant. But there is a difference between distress and normal behaviour. McCarthy report includes a different scoring system for panting – in spite of the Gaughan scoring being in use – a stocking rate that ignores the fact that sheep sleep/camp together – even in hot condition.

It will be interesting to see if the observations and comments from Independent Observers align with those of McCarthy's.

The answer is yes: the RMR should indicate other levels for more general welfare indicators: if scientific definitions can be determined. For example: "they sleep in their own manure", a quick observation shows they do that in every sheep camp tree in Australia, "they are packed in" as they are on the bank of a dam (out in the sun on a hot day). Independent Observers state – deck conditions are not a problem. Yes, decks have water troughs that leak and water pipes that break – and get fixed.

So, the question is: what are the scientifically based and visible indicators of stress. Certainly a sustained score 5 panting is highly stressful – but is a short time score 4? Are sheep facing and panting toward the inlet air vents and breathing with their mouth open in cool weather showing stress? In all of these related multiple-inquiries, there has been little, if any, actual observations of sheep?

3.2 Voyage reporting requirements

1) What further changes, if any, do you think are necessary to the voyage reporting requirements of the standards?

- Only those that would be of benefit for immediate response and to give immediate, real-time support, or for long-term analysis.
- AAVs, as key stakeholders, have been poorly involved in data collation and interpretation.
- The industry and DAWR have poorly managed the ability to capture and utilisedata for epidemiological analysis to date. Appropriate expertise should be involved in coalition interpretation which will support mortality measure threshold levels and highlight which events need in-depth investigation
- The industry would benefit from proactive collation and analysis of data to drive improvements in mortality and morbidity rather than data being used solely as a measure of compliance

- The industry will benefit from standardised daily and EOV reporting to allow data to be aggregated and analysed
- The ASEL committee must ensure any templates include all requirements covered in legislation and current EANs so that requirements are all in one place. Below is a compilation of all current requirements from Section 4A.15 of the Export Control (Animals) Order 2004, ASEL v2.3 and EANs.

Daily report

A daily report must be submitted to the department via email to live-stockexp@agriculture.gov.au commencing on day 1 of the voyage (day 1 begins at be 12 pm after departure from the port).

The report must include:

- – vessel name, date, day number, vessel position and ETA at next port
- – name of stockperson and AAVs on board
- – the number and type of live-stock on each tier/deck and port of loading
- – the temperature (dry and wet bulb readings) and humidity average for each deck and the bridge
- – the deck conditions other general conditions
- – the feed and water consumption (average per head) of the live-stock
- – the respiratory rate and character (normal, panting, gasping) of the live-stock
- – whether and to what extent the live-stock are showing heat stress
- – if heat stress mortalities occur the number and tier/deck on which these occurred
- – the average faecal consistency for each cattle
- – a hospital pen report including medications and treatments
- – a mortality report including the number of mortalities and number alive of each type/class on each tier/deck
- – the number of live-stock that gave birth and estimated stage of pregnancy at time of giving birth for each birth
- – issues from daily meeting
- – information on the number of sheep showing clinical signs of scabby mouth
- – other relevant matters

End of voyage report

An end of voyage report must be submitted to the department via email to live-stockexp@agriculture.gov.au within 5 working days after the end of the voyage.

The report must include:

- – the name of the exporter
- – voyage number
- – the port or ports at which the loading or discharge took place
- – date on which loading and discharge of the live-stock was completed at each port
- – the types and number of live-stock loaded or unloaded
- – the duration of the voyage
- – the total mortality and percentage mortality for each type/class of live-stock on each tier/deck
- – the health and welfare of the live-stock during the voyage
- – number of live-stock that gave birth and summary information in relation to the estimated stage of pregnancy at the time of birth for those births, number of abortions
- – any treatment given to the live-stock during the voyage
- – any feed and water access issues or relevant maintenance issues
- – environmental conditions of the voyage, including: weather, temperature, humidity, ventilation, decks/bedding
- if heat stress mortalities occur the number and tier/deck on which these occurred
- anything else relevant to the live-stock during the voyage

2) Should the voyage reporting changes recommended by the McCarthy Review and then instituted by the Department be applied more broadly?

Opinion 1:

The reporting requirements should be just that, requirements. The ASEL review committee and the department should avoid determining the technology to be used for collection. While the accuracy of information and consistency of what is reported is paramount, the approach to dictate the technology to be used for collection will prove restrictive to future development and improvement of systems over time.

Opinion 2:

Clear reporting requirements should be used by industry to develop consistant collation, aggregation and analysis of voyage data. The development of an industry database or dashboard managed by Livecorp or potentially LGAP would allow the regulator and stakeholders to use information in a consistent and comparable form)

Opinion 3:

Not sure if the McCarthy reporting recommendations will add anything other than additional work with little, if any, result in daily animal welfare. Applied more broadly – to what? Simple answer/question: what additional benefit will there be?

3) Some stakeholders would like voyage reports to be publicly available, while others argue that this approach may limit candour. What is the best approach to balance public transparency with frankness in reporting?

Opinion 1:

The reports should remain confidential and be available as summarised versions in quarterly reports for public and political review. Each voyage could be given a rating which indicates if any reportable measures were exceeded or if an investigation was required.

To overcome public concern, the regulator (the department) needs to have public credibility. The regulator also needs to hold credibility within the industry. A simple start to improving would be for the department to employ people with industry experience and scientific qualification to oversee voyage reporting and investigations.

The department receives a lot of data; it seems their responsibility lies in collation and provision of appropriate information to the public and politicians for transparency of the industry and show how it is being regulated. If this is not the regulator's role, independent auditing bodies could undertake this work

Opinion 2 & 3:

I think that there are benefits in confidentiality. The uneducated public can easily misinterpret a report. AAVs would be reluctant to report everything candidly if they were on the public record.

The EOV report should be available with redactions (if these are considered necessary) by the department. Full disclosure assumes a rational and educated understanding of the public. There are too many examples where people with a mission will take certain aspects of a report that can be developed to further their agenda.

Opinion 4:

I have absolutely no problems with the reports being publicly available to all and sundry – with two caveats: 1. That the department's response is publicly available at the same time (not eight months later); 2. That the general public is guided and educated on what the reports mean, and the input/output information is technical and not open to lay anthropogenic interpretation.

4) Should there be on board real-time monitoring of animals and vessel conditions? If so, what should these be and what would be the cost?

Opinion 1:

The reasons behind why this would be required and should be outlined.

- If real-time monitoring is used, what mechanism are thought to be useful in managing a situation in real-time? Monitoring suggests a measurement is to be collected and this has not been described
- AAVs and stockpersons are capable of providing timely and accurate reports of animal monitoring factors and shipboard conditions. Excessive oversight would hinder the autonomy of professionals making decisions and providing reports
    - There is currently /generally limited contingency for exporters or DAWR to proactively engage with AAV's and shipboard personnel to actively implement mitigation strategies in a timely fashion

- CCTV camera monitoring:
    - Will provide enormous amounts of images but risks little situational context for what is occurring
    - Research could be conducted to see if this is an appropriate method to review and audit ASEL compliance
    - Could be used instead of using an independent observer on voyages which is costly to the industry and provides a challenge to vessel morale.
    - May be useful in time lag analysis of behaviours in conjunction with real-time environmental monitoring. This is a research area which needs further consideration before use
- Environmental data loggers
    - Real-time temperature data loggers could provide detailed information of deck conditions and reflect true maximum and minimum temperatures rather than current measurements taken at one point of the day
    - Use of automated data loggers such as Kestrel drops is relatively cheap at approximately $250-300 per unit
    - Further research needs to be completed on the number required in a defined area on decks to reflect both the deck as a whole and further identify any significant variations within a deck which may be useful for management decisions and voyage/vessel data analysis.
    - Loggers have the ability to submit data via Bluetooth and Wi-Fi which need further testing in shipboard environments
- The collection of environmental data by automated data loggers in a useable and timely format could provide a valuable tool for AAVs and stockpersons to make management decisions real time. In addition, the more detailed data collection will be valuable for industry and regulator analysis of specific vessel and route risk factors

Opinion 2:

- Continuous monitoring has inherent problems. For example, photos taken during washdown of cattle decks can look disturbing if it is assumed that this is the normal state of affairs and not just a snapshot of few minutes during cleaning.
- The most important immediate monitoring tool is your own body. If discomfort is noticed then the animals will be exposed to this.

Opinion 3:

- Is this based upon a reflection that the crew do not take accurate readings of all placed thermometers on each deck at the correct time each day: I totally reject such an assumption. At present, temperatures are taken at the same time each day (10:0 – 10:30 am ship time). Maintenance of the equipment is generally good. This ‘average’ generally allows vets and crew to make estimates on likely events.

- The critical factor is the Wet Bulb Temp (34^{o}C is a critical indicator).

5) Should there be specific recording and reporting of additional environmental parameters on vessels during voyages? What might these be, and can or should reportable 'trigger' levels be set?

Opinion 1:

- Yes, this may be beneficial
- The collection of additional information by the regulator needs to have a clearly defined uses (this may differ from use as a tool for management and decision making)
- Further environmental and air quality recordings such as ammonia may be useful in real-time, and post voyage, to verify conditions on the voyage
- All information needs to be reviewed in conjunction with animal measures and deck conditions reported by AAV and stockperson rather than in isolation as a trigger level.
- Example - If a voyage had unexpected mortalities on a deck area which was associated with a wet pad, high wet bulb temperature and high ammonia reading, this provides objective information to make management decisions to move live-stock and review ventilation and also provides information for further investigation into the cause.

Opinion 2:

- Constant monitoring would give accurate real time data – but would be very misleading. The deck temp is a guide – not a determinant level. The Independent Operators have measured afternoon temperatures at 1oC higher than morning temp: the ship operations, vets, stockpersons fully understand this difference.
- Who would monitor the real time data – and what would it mean e.g. say a deck was hotter than another?
- Some research to determine the 'hot-spots' on each deck would be more value as locations are fairly random.

6) Should there be specific recording and reporting of animal welfare indicators during, and at the conclusion of a voyage? If so, what might these welfare indicators be, how frequently should they be measured and can/should reportable trigger levels for these measures be established?

- Only scientifically validated indicators should be set as a standard in ASEL. Until this point they should only be used as trial management tools
- More detailed reporting on current measures such as pad condition, panting scores, feed and water consumption and ensuring that the regulator is capable of interpreting this information would be recommended before engaging research tools which are not yet validated.
    - Panting scores, and supporting research validating the scoring system. should be identified
- The aim of the end-of-voyage report is to provide a summary of the voyage and overall conditions. Some of what is reported seems to have limited use, e.g. average temperature

over a 16 day voyage between hemispheres is almost nonsensical as it does not communicate any useful information

- Industry is researching the use of an animal welfare indicators protocol. It is proposed that a representative sample of animals will have measures recorded and to provide information on the welfare state of animals on a specific deck or a specific type/class of live-stock at a specific point in time. This research and the indicators proposed require scientific validation before further uptake by the ASEL review committee or the regulator. Immature use of these measures may undermine the research and its future uptake and credibility
- The current most accurate measure of animal welfare is the AAV and stockperson caring for live-stock during the voyage. The number of animals treated, euthanised, feed and water consumption and environmental readings provide a clear picture of the voyage if appropriately skilled people are reviewing the information.
- Long term temperature data is currently available through daily reports received by the department over many years along with daily mortality numbers

7) If reporting requirements are increased, what might be this cost and who would pay?

- Requiring information to be collected is somewhat easy. The analysis and how this is used to inform decision making is more difficult.
- It is important for ASEL to outline why the information needs to be collected, how it is to be analysed, and which decision making processes will use this analysed information.
- How would collecting more information improve the industry if there is no plan for its analysis and use?
- Funding through LiveCorp (similar to current paid positions or other LERDAC funded roles) for the collation of industry animal mortality/morbidity and welfare data.
- Ultimately the costs will be passed onto the farmer
    - the dollar cost is totally related to what additional equipment and monitoring (including maintenance) is required.
    - The cost in time for AAVs and stockperson could be excessive.
- Cost is only the first part: what is the economic benefit – or the community benefit. Would such additional costs guarantee any benefit?

4 Heat Stress Risk Assessment

1) Should paragraph 3A.4 (a) (ii) be amended to include other geographical locations?

Opinion 1:

Yes - Based on the following conditions:

- The paragraph should be amended to include high temperature regions where heat associated increased mortalities can be demonstrated from previous data.
- If the heat stress risk assessment model is accurate, and the assumptions within this model are applicable to other geographic locations, then the risk assessment would improve identification of potential risks and benefit the industry. However, if the assumptions are not applicable to other geographic locations, then it would be counterproductive for the industry to adopt the model as it currently stands.

Opinion 2:

Yes: for Bos taurus cattle traveling to Asiatic countries- equator and port risks

Ventilation, ventilation, ventilation... Just like the real estate mantra location…

Opinion 3:

All voyages that cross seasonal equatorial regions are at risk of experiencing conditions that may result in heat stress. If increased measuring and monitoring of clinical signs of heat stress is adopted, and triggers are changed, it is likely the HSRA will need to be reviewed and modified and that all voyages crossing seasonal equatorial regions should be required to conduct a HSRA .

Opinion 4:

I realise that the Heat Stress Risk Assessment Model is beyond the scope of this review, however, the highly flawed “HotStuff” program has the most potential to shut down the industry by imposing unrealistic shipping densities over the Middle Eastern “summer period”. It needs a complete overhaul, especially if changing from a mortality to a stress-based model. If the calculations given in the McCarthy report are taken up, then it will effectively shut down the live sheep export industry as densities would be completely unviable for 4-5 months of the year.

2) Is the restrictive period of May to October for voyages departing to the Middle East appropriate? Are these the high risk months for heat stress for animals being exported to the Middle East? If not, what months should be considered as high risk?

Opinion 1:

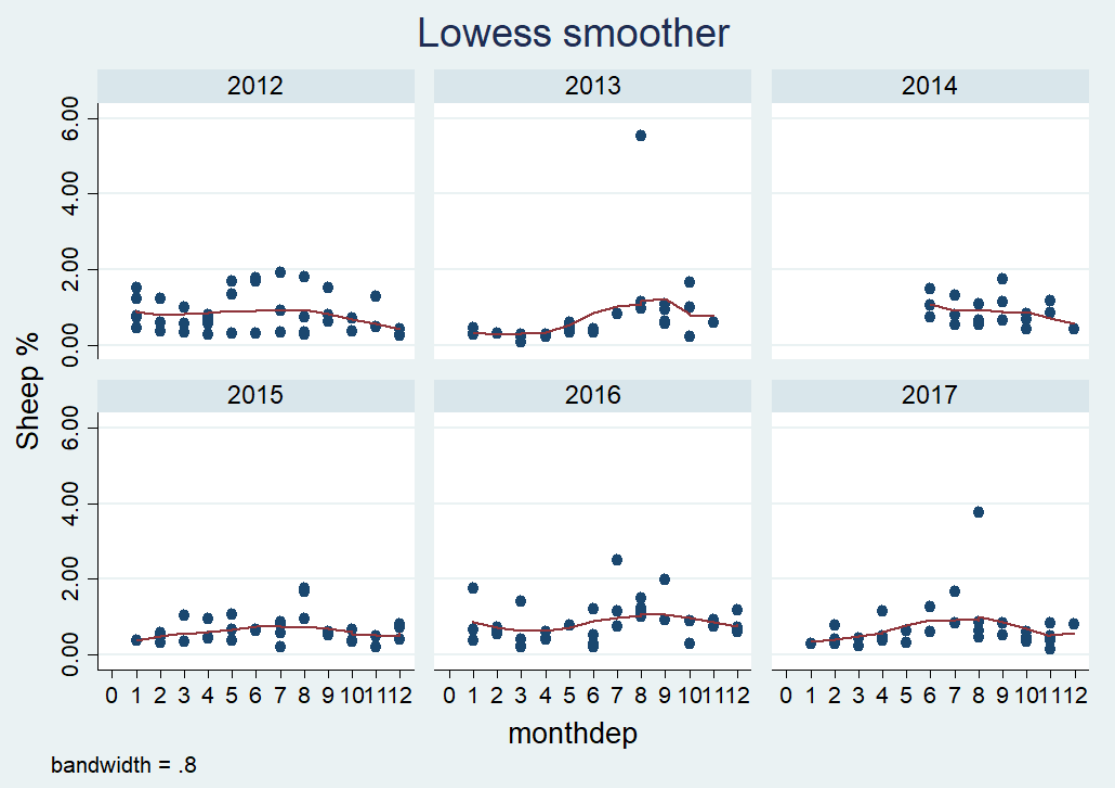
No

There are many years of data collected on voyages to the Middle East. It is noted that there is concern over the accurate reporting of mortality numbers within some voyages over this time, however, the

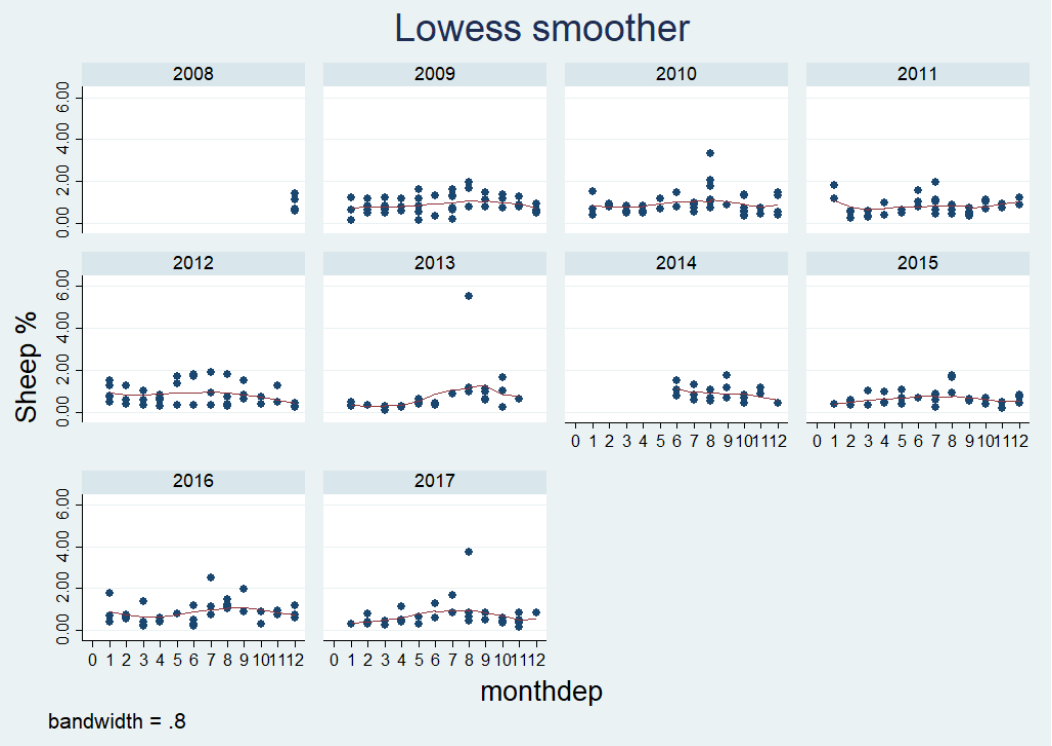
department has not provided details of the underestimations, and on the number of voyages this may be applied to.

The data below comprises all sheep voyages from Australia, including Middle East destinations, and is sourced from the department's website. It is difficult to determine a seasonal pattern to mortalities over this period, especially when adjusting for the frequency of voyages per month, numbers of sheep exported, and the changes in ships in use during the period.

Restricting the period of analyses to the previous 6 years removes the effect of older ships (those no longer in service) to some degree, and is more representative of the current regulatory and operating environment.



*all sheep sea voyages from Australia, not only middle east



*all sheep sea voyages from Australia, not only middle east

Opinion 2:

Heat stress: above 33 Celsius wet-bulb is crucial. Below this, the risk lowers and is minimised and ventilation is a help. Above this heat load will be unsustainable, especially for animals not adapted biologically to tropical conditions, no matter what calculations you undertake.

Opinion 3:

No - data used to support the restrictive period of May to October is incomplete and poorly interpreted. Data should be re-analysed in light of more comprehensive climate data analysis and specifically the conditions that initiate heat stress mortality events. It is likely that these risks may be unacceptably high in the months of August /September at destination, but may well be mitigated for other months

Opinion 4:

I believe the May – October period is too long (I assume 1/6 to 31/10, though the dates are not defined.) From my experience on ships during that period (and June & July, both on ships and in the Middle East) I suggest that leaving Australia after 31st May to before 1st October should be the period for decrease stocking density as per the current ASEL v2.3 values.

3) Are there different high risk months for different markets that aren't considered in the standards?

Opinion 1:

Yes, all voyages should be reviewed

- High morbidity and mortality due to hypothermia is a potential problem in markets where extreme cold is experienced

- Notifiable mortality events recently on China voyages with Bos taurus cattle in June and July.

Opinion 2:
Maybe - data needs to be collected and reviewed to objectively determine this.

Opinion 3:
Meteorological modeling using historic and predictive data should be reviewed for all voyages and AAVs should be provided with this information to help review the potential voyage risks.

5 Sourcing and preparation of animals

5.1 Sourcing Bos taurus cattle

1) Should Paragraph 1A 3.2 (c) (iii) be retained in its current form?

Opinion 1:

- Yes
- If HSRA does not adequately address risk, there is something wrong with the HSRA model.

Opinion 2:

- No
- The May to October period should be reviewed with consideration to animal tolerances and for the specific voyages and discharge ports. There should be further extension of the model to cover all voyages that cross the equator especially for Bos taurus cattle, even if this is to confirm that risks are being adequately managed
- The risk to live-stock post discharge should be considered by researchers, industry and the regulator. As leaders in animal welfare we can help importing countries understand and source the most suitable live-stock for their climatic conditions.
- Bos taurus cattle - known risks are associated with exporting this type and class from southern port acclimatisation zones. This class is covered in HSRA recommendations. Further research is required to validate heat tolerance of live-stock classes for effective risk management of consignments.

2) Should Paragraph 1A 3.2 (c) (iv) be retained in its current form?

Opinion 1:

ASEL should provide scientific references to the body scoring condition it is referencing.

These and other resources are significantly different to the table in ASEL,

- Beef cows
    - http://agriculture.vic.gov.au/agriculture/live-stock/beef/handling-and-management/condition-scoring-of-beef-cattle
    - https://futurebeef.com.au/knowledge-centre/body-condition-score-for-beef-cattle/
- Dairy cows
    - https://www.dairyaustralia.com.au/farm/animal-management/fertility/body-condition-scoring

Opinion 2:

Relevance is unclear. It seems most unlikely that BC Score 5 Bos taurus cattle sourced north of latitude 26° South would be available in that period, and if they were, should be well adapted with a low risk of heat stress.

5.2 Shearing sheep and hair sheep

1) Should there be a minimum period of time off-shears and/or wool length to apply for all wool sheep being sourced for export?

Opinion 1:

No and if so 1 clear day would suffice.

The main objective of shearing, especially in the months when animals are traveling from the southern hemisphere winter to the northern hemisphere summer, is to better prepare animals for heat loading. Shearing recovery has been demonstrated to be within 24 hours. Shearing in registered premises allows animals to be managed appropriately without time off water and with minimum time off feed prior to export.

The TAC should investigate where and why the current standards and requirements relating to sheep originated. If the origin of this, and other requirements, are related to incidents that occurred historically in southern ports of Portland, Victoria and Adelaide, South Australia then these ports are currently no longer major sheep export ports.

All requirements and standards should aim to be outcome based. The outcome is sheep exported have less than 25 mm of wool. The exporter, along with the RP operator, and in consultation with the AAV, should be able to make management and husbandry decisions appropriate to the identified risks. Husbandry practices should align with endorsed state and national animal welfare standards.

Opinion 2:

Additional considerations not mentioned in the Issues paper regarding reason for time period off shears are:

- A period of time (10 days seems reasonable) for small skin nick/cuts to heal before that animal is exposed to more stresses through yarding, transport, and potential increase in wound contamination risk from higher density environments (paddock/quarantine vs onboard)
- Reduced shearing cuts can be achieved by not requiring shearing of the distal legs.
    - The crucial part of shearing cuts is that they should not be in contact with the floor which is the major source of contamination. To ensure this, shearing of the lower legs (especially hocks) should be discouraged.
- Rejection criteria should be sufficient to cover major shearing cuts

Opinion 3:

Are there restrictions on road transport for sheep shorn within a minimum period? As a practicing veterinarian I have seen more negative impact from hypothermia when freshly shorn sheep are transported in wet weather to registered premises.

Opinion 4:

I agree with the current recommendations.

We have observed that freshly shorn sheep are the ones that become covered in faeces – as dramatically shown in recent TV shows. Sheep where the shorn fleece surface has dried and waxed over do not collect manure stains to any degree. (Plenty of photos and IO comments).

2) Should all hair sheep and alpacas be subject to the same requirements as wool sheep?

Opinion 1:

No

Are alpacas being exported in sufficient numbers during, through, or to hot environments? Do the animal welfare benefits offset the animal welfare risk of conducting shearing of alpacas? This may be best left to departmental discretion and species experts where there is no regular trade.

In terms of hair sheep, Awassi sheep are heat tolerant. Management of these sheep, especially when determining body condition, is significantly different to wool breeds. Awassi sheep body condition score is related to the amount of fat in the tail and is not related to the normal means of body condition assessment appropriate to wool breed sheep.

Hair sheep (Awassi) behave totally differently to Merino/British breeds. Their heat tolerance and self-crowding adaption of these sheep is obvious to anyone that travels with them. Post-mortems of the very low numbers of Awassi type sheep are usually related to enterotoxaemia and other enteritis. There are plenty of photos and IO comments from voyages with Awassi sheep.

The HSRA currently includes adjustments in stowage for hair length, a 10% figure is not necessarily reflective of requirements and the TAC should avoid blanket dispensations. If allometric stowage factors are now to be used and updated in HSRA model this will be incorporated in the algorithm with the animal tolerance.

Opinion 2:

It is extremely stressful for fat tailed sheep to be shorn. Any benefit would be lost by the stress inflicted on the animals. This only applies to high grade (cross) Damara, Dorper, Van Rooy.

Awassi may require shearing, in spite of it being stressful, as they have very long coats. The 25 mm rule could be applied here, but I need more evidence/experience.

After reading comments by others, I do agree that Awassi appear to be less susceptible to heat stress. However, in my voyages where Awassi were included, they appeared to have a lower stocking density due to HSRA model adjustments. Obviously more research is needed in this area. When coupled with heavy condition, long wool places an unacceptable stress on sheep.

3) Should the standards be amended to alter the specifications currently in place prescribing time-off periods for shorn wool sheep and shorn hair sheep? If so, what would you suggest?

Opinion 1:

Yes

The purpose of the requirement for 10 days off shears and further requirement for animals to be housed in sheds if shearing takes place in the registered premises needs to be defined. Is this standard/requirement aiming to reduce hypothermia, stress, shearing cuts, inanition and salmonella or the cumulative effect above?

Of the three new options proposed by TAC, option 2 or 3 are reasonable. However, 1 clear day would suffice with strict shearing cut rejections and limited shearing of extremities as suggested. The McCarthy review indicated 'off shears" sheep are far more heat tolerant. In conjunction with proposed increases in time at the RP, the shearing standard and requirements should be outcome based and not restrict the ability to have as many sheep "off shears" as possible especially on voyages to the Middle East in the northern summer period.

The cumulative effect of increased standards and requirements throughout the ASEL review (without full epidemiological data to define the real risks) may be excessively restrictive to the trade without necessarily improving welfare outcomes.

Improved standards are welcomed with scientific evidence. AAVs are well placed and should be used to review proposed standards if the outcomes are operationally effective and likely to provide better welfare outcomes.

Animal husbandry practices should be at the discretion of experienced exporters and registered premises operators. The ASEL standards need to provide clear outcomes and minimum guidelines and not restrictive time frames to supposedly managed undefined risks.

Opinion 2:

No. What does the data show?

If the reason is to monitor for shearing nicks, then this does not require a 10 day quarantine. However, emphasis on effective monitoring and rejection of any cuts is imperative.

4) Are any other changes necessary to the requirements for wool sheep and hair sheep?

Yes

- Recognition and understanding that Awassi sheep are very, very different to Merino etc.
- See other comments in answer to question 2

5) Should the current standards regarding timing of shearing prior to loading for export by sea be revised?

Opinion 1:

Yes

- As described above this is a management practice. Sheep should be shorn and managed in their environments with feeding, shade belts and contingencies to manage risks of extreme hypothermia events (if this is the defined reason).
- The standard requiring sheep to be in sheds post shearing should be restricted to registered premises with a known risk of hypothermia. There may be different requirements for southern Australian ports and Western Australia rather than one standard for all areas of Australia to reflect climatic risks of each area.

Opinion 2:

No

- Freshly shorn sheep get dirty and present poorly in photos

- Perhaps there would be advantages if all sheep were held in quarantine for 10 days. Inanition and its identification is a major cause of problems on board.
-

5.3 Maximum weight of cattle and buffalo sourced for export by sea

1) Should the maximum weight for sourcing and exporting cattle and buffalo be the same?

Opinion 1:

Yes

An improvement on this would be to consider the type and frame size of the animal. A 650kg Angus steer is a very different animal to a 650kg Friesian steer. As such these 2 animals may have the same weight but have very different requirements.

Opinion 2:

Maybe needs review.

Data should be reviewed to identified any patterns that suggest maximum weights of cattle and buffalo should be different. They are a different species and there may be considerations that need to be reviewed where high risks categories are identified. While buffalo exports are comparably low, this area may need to be refined, with further research if warranted, by identified historical and current mortality and morbidity data.

2) Should cattle and buffalo exported for feeder and slaughter purposes have a different maximum weight to cattle and buffalo exported for breeder purposes?

No, while these are different types, weight is used for space allocations. Appropriate live-stock land transport recovery and adaptation period in quarantine would be the most important consideration.

3) Is 500 kg appropriate? Is 650 kg? Should it be higher/lower and why? What are the animal health and welfare risks? Are there any mitigating measures that must be taken?

Opinion 1:

650kg is appropriate

- If space allocations are sufficient then there is little increase in risk. Type and frame size should be considered.
- Giving too much space can increase injuries in instances of rough sea conditions are experienced.
- Each vessel design should be assessed to determine if larger animals can walk easily through the laneways and on the loading ramps.
- Bigger cattle are at higher risk of ketosis so may need longer induction into registered premises to allow for appropriate feed conversion uptake

- Exemptions should exist for breeding bulls greater than 650kg subject to Approved Arrangement management plans
- ASEL stowage factors already account for risks associated with Bos taurus cattle from southern ports. While this space allocation is adequate to manage this weight, the time of year heavy Bos taurus cattle are exported should be reviewed to avoid heat stress events for new markets like China who want slaughter weight cattle.
- The 500- 650 kg weight range is mostly commonly northern Bos Indicus cattle which are heat tolerant and travel well at current stowage factors.

Opinion 2:

- I feel that 650 Kg cattle can have more problems that lighter cattle. It is my feeling that 450 Kg should be maximum weight. There should be some information on this in DAWR files.
- Heavy animals definitely have more foot problems. However, with focus on providing appropriate bedding, this is not insurmountable.

Opinion 3:

Cattle greater than 500kg should have risks identified and mitigation specifically addressed in Approved Arrangement management plans as per EAN 2016-12. Additional or class specific mortality and morbidity data collection, should be specified as a condition of export to facilitate more data on relative risks for heavier cattle.

4) Is a weight restriction appropriate and are there extra conditions that should apply or should it be more specific, for instance, a body condition score and breed?

See comments in answers to Q1-3

Additionally, these criteria should be assessed based on epidemiological data, not anecdotal reports.

There should be a move away from only using body condition scores as these can be too subjective compared to weights. However, the size (frame) of the animals needs to be taken into account. For example, a 600kg Friesian steer is very different to a 600kg Angus heifer.

A clear definition of how weights are collected and any curfew adjustments made for specific drafts and/or individual animals should be clear and defined by exporters for each consignment. This will allow AAVs and inspecting DAWR officers to review stowage allocations and any relevant management plans accurately.

5.4 Minimum time sheep, goats, cattle and buffalo must remain at a registered premises prior to export by sea

1) What is the minimum time that sheep and goats should be held in an outdoors registered premises prior to loading aboard an export vessel? Should other provisions be included regarding seasonal factors, feeding and pre-conditioning to shipboard rations?

Opinion 1:

The current tables in the reformatted ASEL identify the location of the registered premises but no reference to where the live-stock have been sourced or their length of transport. If the live-stock have come from the local area then there is little acclimation to occur and little to support a period of time longer than the time to become accustomed to pellet feed. If the live-stock are sourced from a different climatic or distant area then time to allow some acclimation to the climate seems reasonable.

Opinion 2:

Many sheep are slow to adapt to a new environment. In line with research it often takes 7 days to identify those sheep not eating or drinking after moved to a new environment. They may not have ever experienced the new feed supply, taste, method of delivery, or the new water supply or taste.

Quarantine of 7 to 10 days should give enough time for staff at registered premises to identify animals not suitable for export. Workers at Registered Premises should be supported and trained by AAVs to be observant and identify all suspect animals, rather than being discouraged as in now the case on many Registered Premises.

Opinion 3:

My experience over 125 long haul voyages is that the crucial factor is the ready acceptance of the feed. To this I have developed methodology for rapid acceptance of the new fodder supply. An attractant which will induce the animal to accept this is essential. This varies with the species. For example a small sample of oats mixed with the fodder will induce feeding in sheep. Since adopting this I have never had a case of shy feeder amongst sheep. The reduced stress also results in no cases of acute enteritis occurring on shipments I have been involved with.

Opinion 4:

Review of the quarantine period is warranted to ensure the sheep preparation period allows for recovery from transport, nutritional adaptation to pellets, shearing events (if required) and identification of shy feeders or other ailments. There will be significantly increased costs to exporters which industry will need to consider in their submission. 5 clear days, year round, in all types of registered premises, appears to appropriately prepare sheep for export by sea while allowing the trade to continue to operate commercially.

2) What is the minimum time that sheep and goats should be held in sheds registered premises prior to loading? Should other requirements be made for seasonal factors, feeding and pre-conditioning to shipboard rations?

The time in pre-export sheds or paddocks should be the same unless a reason is defined. Season does not change welfare standards. Feeding and pre-conditioning requirements can change time in quarantine facilities but it must be specified, and verifiable.

Exporters should be encouraged to provide feedback to vendors to provide pre-conditioning support. Research is needed for on farm preparation practices which could improve health and welfare and promote early feed adaptation. On farm lead feeding is one example that might be useful.

3) Should the standards be amended to alter the specifications currently in place prescribing timelines for various classes of live-stock to remain at a registered premises prior to export by sea? If so, what would you suggest?

Yes

Opinion 1:

The class of live-stock is not taken into account when assessing the time required. For example, old slaughter cattle from northern Australia take significantly more time to become accustomed to new environment and types of feed compared to young feeder cattle from northern Australia.

Consideration needs to be given for the species, class, time of year, and location of origin when determining time periods

Opinion 2:

Sheep from Pastoral zones may never have seen water troughs and feed troughs. Pastoral bred sheep do need more time in yards that sheep from intensive areas. If variations are included in ASEL, I am sure that the shortest option would become the normal accepted.

Perhaps there could be a record of sheep rejected at the wharf and a trigger set at 0.01% for DAWR to institute an investigation. Exporters get very anxious when the on-board AAV starts rejecting sheep that, in their professional opinion, will be dead in 2 days.

4) What would be the cost implications of any changes to the times live-stock must spend in registered premises?

This could be significant 75c-$1/hd per day.

Exporters will argue to reduce it to a minimum level. However, making quarantine short will not improve health and welfare outcomes.

Other comments from AAVs regarding Registered Premises

- Reporting from feedlot to ship needs improvement. I do not work on the land-based registered premises or with the stock at this point. The major concern that must be addressed is that of AAVs at the registered premises (and inspectors at loading) must report any problems that occur prior to, and during, loading to the shipboard AAV. I have never had information from the preparation site. The DAWR repeated comments have been that this could come from the exporter – however DAWR also has the official information.
- For cattle from northern Australia I recommend the application of molasses to the fodder pellets for transition onto the ration
- For buffalo, salt appears to be more attractive for transition onto the ration

5.5 Management of shy feeders and inanition in sheep

1) What measures should be required to reduce the incidence of inanition and salmonellosis in sheep? Are the current requirements in the standards adequate to manage shy feeders and inanition in sheep?

Opinion 1:

- TAC should refer to research completed by Murdoch university on this topic. Prevention is the cure and the proposed increased quarantine period will decrease the number of inanition cases. The impending salmonella vaccine will also be valuable to the industry.
- While 80% of sheep mortalities during export have been stated in the discussion paper to be due to salmonella induced enteritis, inanition, or a combination; diagnostic tools to make this assumption have not been used readily on voyages and other etiologies could be at play.
- Another management and prevention tool is the identification and removal of at risk animals from consignments. There are currently varying standards of inspection equipment; how live-stock are inspected by AAVs and DAWR before export should be discussed. Paddock inspection is only appropriate for final health and welfare inspections not as individual inspections. The raised platform system used at Fremantle wharf should be recommended at all ports used for loading sheep and would be ideal as a mechanism at registered premises to facilitate thorough individual inspection and rejection at point of loading onto trucks. Sheep are more difficult to manage and inspect individually by nature and infrastructure used should reflect this.

Opinion 2:

- Too many shy feeders are making it to the wharf. I personally have rejected non-eaters at the bottom of the gangway. Registered premises operators must be responsible for the sheep they load to transport to the wharf.
- A quarantine period (maybe 10 days) is useful to pick up shy feeders and as such it plays an import role in preventing voyage mortalities
- Inanition: much money and time has been spent on Australian and New Zealand export sheep to identify and treat PRIMARY inanition.
    - No causation or treatment has been defined. Secondary inanition, by definition follows other problems – generally gastritis or enteritis.
- Salmonella: Is there good evidence to quantify the number of enteritis cases that get labelled ‘salmonella’.
    - Diagnosis of causation of enteritis on board ship is probably incorrect 60% of the time. I have had two experienced vet pathologists as backup; one on ship and twice in Kuwait. Without laboratory backup their diagnosis of causation – was anybody’s guess between Salmonella, E-coli, Enterotoxaemia, Yersinia or Campylobacter. Using microbiological culture plates on two voyages, I generally culture Salmonella or E-coli– with no clear correlation to gross pathology.

Opinion 3:

- It is likely that there are significant interactions between fodder quantity, quality, frequency (and irregular intervals during transport and loading) of feeding, and trough space on rumen stability, poor adaptation/inanition/SARA/metabolic disease and susceptibility to enteric pathogens

Opinion 4:

I suggest the best treatment for primary inanition is euthanasia. Feeding hay or chaff can be successful but is more related to personal ego than welfare of the animal. Very, very few recover from genuine primary inanition – even with a multitude of treatments.

2) If not, what changes would you suggest?

- New descriptions of primary and secondary inanition. At the moment' '*skinnys*' are regarded as primary inanition. Fat sheep with no rumen content are regarded as secondary inanition – after postmortem.
- It is extremely difficult to draft off sheep on the wharf. Perhaps a cut off percentage could be introduced.

3) What would be the cost implications of any proposed changes to these requirements?

Opinion 1:

This could be significant, but surely loss of licence is a greater impost.

Opinion 2:

Very little. Read some previous research papers and euthanise earlier.

Opinion 3: infrastructure upgrades for inspections will be a valuable investment for industry and will reduce live-stock being loaded which may not have been identified due to the difficult nature of individual inspection of this species.

5.6 Pregnancy test requirements and limits

1) What is the risk of changing the pregnancy test requirement from all Damara sheep to only those that weigh over 40 kg?

- Damara sheep can get pregnant from 30 Kg. Personal observations.
- Damara sheep should be pregnancy tested on POO and possibly again at RP
- Should the standards be expanded to include all fat-tailed sheep and not just Damara?
    - Fat-tail sheep being: sheep distinguished by a genetic predisposition for the accumulation of fat in the tail and hindquarters.

2) Should the standards be expanded to include all fat-tailed sheep and not just Damara? Fat-tail sheep being: sheep distinguished by a genetic predisposition for the accumulation of fat in the tail and hindquarters.

- Crossbred sheep are difficult to define and all crossbreed sheep should have the same rules

3) Must pregnancy testing be undertaken by a veterinarian, or is a competent pregnancy tester acceptable? Should it be expanded to any live-stock pregnancy tester as accredited by the state or territory?

No

Registered veterinarians only.

Veterinarians are regulated by legislation and registered with the state/territory veterinary surgeons board. There are requirements of registration to participate in continuing professional development and members are subject to de-registration and prosecution if they do not operate within the legislation. Registered veterinarians have professional and legal obligations to conduct veterinary procedures with a high degree of competence, and to certify the health, freedom from disease and physiological status of animals. Veterinarians are legally accountable for their activities and this provides a significant level of assurance and accountability to industry, exporters and importing countries that pregnancy testing has been performed diligently and with a very high degree of accuracy. Requiring pregnancy testing to be conducted or under the supervision of a veterinarian may also provide some assurance on the health status of the herd or mob the animals are selected from.

Cattle

Pregnancy diagnosis of cattle for live export cattle should be performed by a registered veterinarian for the following reasons:

- Current training and accreditation standards for ‘accredited pregnancy testers ‘ in the relevant state or territory is inadequate and provides a very poor level of assurance of accuracy and high risk of poor compliance with resultant poor animal welfare outcomes within the period for pregnancy testing

Sheep

Pregnancy diagnosis of sheep for live export should be performed by a registered veterinarian or an experienced pregnancy testing contractor under the supervision of a veterinarian. There are many competent and experienced sheep pregnancy testing contractors. Good records and feedback should be provided to ensure traceback in the event of unwanted lambings.

4) Should the 30 day period prior to export for pregnancy testing be extended to 45 days as a blanket change? Should there be discretionary allowances for low-risk cases, such as unjoined heifers or a shipping delay, where adverse animal welfare outcomes are likely to result from re-testing.

Note: It is assumed that this question is referring to cattle.

Opinion 1:

No change

Minimal discretionary allowances will always leave loop holes to be exploited.

Opinion 2:

The 30 day period for pregnancy testing should be extended to 45 days only when conducted by a Pregcheck accredited veterinarian. The Pregcheck accreditation process is unique in requiring veterinarians to demonstrate accurate estimation of gestational age, and to detect pregnancy down to

at least 6 weeks or 42 days of gestation. In contrast, definition of 'not pregnant' by relevant State and Territory's for the purpose of accrediting non-veterinary pregnancy testers is 8 weeks or more pregnant. Therefore, under current practices, Pregcheck accredited veterinarians are capable of pregnancy testing up to 45 days prior to export without additional risk of undetected pregnancy in export cattle. This would substantially relieve the logistical challenges of accessing reliable, accurate pregnancy testing in remote regions, allow for shipping delays, and for pregnancy testing during on-farm preparation in circumstances where pre-quarantine periods require 30 days in quarantine.

Opinion 3:

Seems a lot of 'unjoined' heifers do not discuss that situation with the visiting bull. I'm not sure what adverse animal welfare outcomes generally occur with modern scanning methods. Has anyone objective data on such adverse outcomes?

Opinion 4:

What is being mitigated?

If cattle gestation length is 285 days and voyage length is 30 days or less then there seems to be little chance of animals giving birth to full term or close to full term calves if the period was extended to 45 days. Abortions may be an issue, others would have experience from exporting pregnant heifers/cows.

If there are commercial or importing country requirements that animal must not be pregnant then this is a different matter and 30 days seems reasonable.

Opinion 5:

45 days for all voyages is acceptable if competed by competent veterinarians and additional requirements such as declarations of separation from bulls are obtained. For example - If live-stock are in quarantine for 30 days as required for some markets and they are pregnancy tested on arrival there is an unnecessary handling event required if the vessel is delayed to repeat testing. The retesting has no animal welfare benefits and only meets an arbitrary ASEL 30 day requirement not the defined risk of unwanted pregnancies for this specific group of live-stock.

5) Should the age that goat kids and ewe lambs are pregnancy tested be increased to more than five months? What would be an appropriate age for goat kids and ewe lambs to be tested?

No.

- Sheep and goats can get pregnant at 150 days
- Argument probably holds if NO pregnant animals are to be exported.

6) Are the methods for carrying out pregnancy tests appropriate? Are there any appropriate national pregnancy testing criteria currently in place that should be adopted/referred to in the standards?

Opinion 1:

A veterinary degree. Quality assurance schemes could be used but there are State/Territory legislation as well as Federal legislation holding veterinarians conducting the work accountable for their results.

Non-veterinarians would need to be registered in some form, with a body or quality assurance scheme so they are accountable for their work and risk losing their qualification/registration required to do the work.

Opinion 2:

Pregnancy testing of cattle should be limited to manual palpation, except in circumstances where animals are too small to be palpated without risk to either the animal or operator (in which case, ultrasound by an ultrasound Pregcheck accredited veterinarian is the preferred alternative), or circumstances where breeder cattle are to exported as pregnant and gestational age is appropriate for accurate gestational ageing by ultrasound.

Ultrasound technology has diagnostic limitations which, in practical circumstances, precludes highly accurate detection of non-pregnancy in comparison to manual palpation. Ultrasound technology should only be used with substantial professional judgement by an experienced veterinarian, and only in circumstances where manual palpation is not possible, or ultrasound provides a clear benefit and with no additional risk of mis-diagnosis in comparison to ultrasound. It would be appropriate for use of ultrasounds to be allowed only on a discretionary basis and with prior approval by the regulating authority, for circumstances as described above.

Opinion 3:

If live-stock are too small for palpation they can be tested using ultrasound, new blood tests from Idexx are also available and have proven practical and less invasive for young heifers with known low risk of being pregnant. Sensitivity and specificity of such testes should be reviewed and agreed by veterinary professionals undertaking and preparing the live-stock under their AEP.

7) Should breeder cattle and buffalo only be determined as too small to be manually palpated safely by a veterinarian accredited under the National Cattle Pregnancy Diagnosis Scheme (NCPD) or should this be any veterinarian?

Opinion 1:

Any veterinarian should be sufficient due to their registration requirements.

There is a conflict of interest with the Australian Veterinary Association as vets are required to be a financial member of the AVA and a financial member of the Australian Cattle Veterinarians (ACV) to be eligible for NCPD accreditation.

Additionally, the legislative framework around registration of veterinarians should be sufficient to hold these people to account if they are negligent in their work. All this requires is for the regulator to regulate within the already existing legislation.

It should be optional and a commercial decision if a veterinarian is to be part of a national quality assurance system. Is there any recent/current evidence that suggests or demonstrates that registered veterinarians are performing worse and have caused industry problems opposed to those that are PregCheck accredited?

Opinion 2:

The NCPD scheme is owned by ACV and administered by ACV on behalf of the AVA. AVA and ACV memberships are used to cover the costs of administering the scheme and other projects for the

benefit of members. AVA membership requires that members follow a code of ethics. There is no definition of the ethics of non-members.

None of the Australian Veterinary Boards have the legislated ability to administer a QA scheme.

Opinion 3:

All Breeder cattle should only be pregnancy tested by a Pregcheck accredited veterinarian. Pregcheck accreditation requires veterinarians demonstrate a high level of skill in detection of pregnancy and estimating gestational age. Veterinary registration, or accredited pregnancy tester status in relevant states or territories does not provide sufficient assurance that pregnancy testing of breeder cattle is performed with sufficient accuracy to ensure good animal welfare outcomes, and expectations of community, exporters and importing countries.

8) What would be the cost implications for any proposed changes to these requirements?

Opinion 1:

Minimal

- No significant cost over current ASEL requirements. Extending pre-export testing period from 30 days to 45 days for Pregcheck accredited veterinarians would substantially alleviate logistical issues in livestock export supply chains and potentially lead to cost savings. It would also greatly alleviate perceived issues of accessibility to highly competent, accurate pregnancy testing services conducted by Pregcheck accredited veterinarians in some parts of the supply chain.
- Anecdotal reports from multiple sources suggest that non-compliance with pregnancy is a very common problem with cattle certified as spayed. This is largely due to the variable skills of operators spaying cattle in Australia and the inherent limitations of commonly used spay techniques in reliably preventing pregnancy in cattle. All female cattle, including spayed cattle, should be pregnancy tested to adequately mitigate the risk of poor animal welfare outcomes as a result of unidentified pregnancies.

Opinion 2:

The exporter will pay by decreasing their purchase price from the point of purchase.6 Stocking densities

6. Stocking Density

6.1 On board stocking densities

1) Do you agree with the application of an allometric model for densities? What is the appropriate k value and why? Should the k coefficient value vary depending on the species and voyage length?

Opinion 1:

Maybe. The allometric model for densities (based on Petherick and Phillips 2007 & 2009) is theoretically sound, however as stated within these studies, much more work needs to be done to ratify the specific k coefficient for each species, age and breed of animal and for each “circumstance”. More work is definitely required to work out the minimum value for the k coefficient for relatively short term (2-3 week) voyage

Opinion 2:

Yes, in principle

- Use of an allometric model for stocking density, and appropriate coefficient value, needs to be validated under field conditions and optimised for acceptable animal welfare outcomes and efficient loading of live-stock vessels.
- There are other considerations of stocking density not adequately dealt with by the simple allometric formula proposed and include animal comfort interactions with pen size, shape, location of feed and water troughs, animal class, sex, pregnancy status, length of journey etc. These need to be considered and validated under field conditions. There is a substantial amount of applied research required to validate and optimise allometric calculations for stocking densities appropriate for livestock export vessels.
- In the interim, it may be prudent to increase minimum stocking densities to a coefficient of 0.030. This would be in broad agreement with what some AAV’s and accredited stockpersons would think is an appropriate increase in space allocation (10-15% across most live-stock classes)

Opinion 3:

No. Do not agree.

- The comment above based on *research, evidence, observation and judgment* has more validity than the misinterpretation by McCarthy of the original Petherick paper. Petherick’s article was a review of previous work. They offered no actual research results of their own. The paper was based upon research based on pigs and poultry – specifically not sheep. They stated that the recommendations could not be validated for sheep.
- Add historical success to the Stage I statement *based on research, evidence, observation and judgment,* then the current and past ASEL values have served the industry well. For example, the Al Messilah has made 161 voyages over 20 years – they have had a major event, continue to make adjustments to mechanics and conditions and have a mortality rate below 0.5%.

Opinion 4:

For me the key point of the review is around stocking density because this will (intentionally or unintentionally) determine whether the industry can sustainably operate into the future. We all agree evidence based change is required but we do not currently have adequate relevant scientific research to back significant changes.

When you look at the difference a k value of 0.033 means to some weight classes (a decreased voyage efficiency in the order of 30% on the most commonly shipped ~300kg cattle for example), it is highly unlikely this could be feasibly completed in the long term.

I would loath to see an industry shutdown by red tape (and particularly the follow on implications to overseas customers who rely on it for protein and genetics as well as Australian farmers, live-stock welfare and rural communities) on the back of so called 'evidence' that doesn't exist. There are sound UNE/Murdoch primary research projects currently being completed on vessel stocking rates that will be directly relevant to the unique shipboard environment. There must be a clause that when/if relevant findings become available the standards will be amended to reflect current, directly relevant, evidence.

2) Should the McCarthy Review application of a k coefficient of 0.033 be applied more broadly?

Opinion 1:

No

- There is no actual evidence to support this value or his recommendation. The manner in which Petherick arrived at this value was mathematical using the length of the sheep to make a cubic function. Statistically or metabolically – where did that concept come from. No, lets choose 0.029 – just as valid an assumption; or 0.062.
- A metabolic standard can be reached, and has been used for 179 years, since 1839 (Robiquet & Tillage) who explained the surface area relationship. Max Kleiber (1932) continued the equation that is successfully used for human and interspecies in comparing metabolic weight and metabolic rate: Mbwt = $BWT^{0.75}$. Use of this equation, like that ASEL standard, shows that smaller animals have a higher metabolic rate and thus produce more heat and would require more relative space than heavier animals. This equation shows a maximum increase of 11% would be sufficient to balance space requirements for different LBWT.
- To change space requirements on a dubious analysis of an unvalidated recommendation is, at best, very generous. Why is there such a desperation to change something that has worked successfully for so long.
- The Petherick papers also make it very clear they have no data or literature on the effects of animals sharing space. Sheep are a gregarious animal and sleep in close groups. Plenty of photos and IO comments – but just have a quick look at the next mob of sheep camped on the bank of a dam.
- Animals on ad lib feed & water, by definition – always have free access to feed & water.
- In practice on the ship – sheep space allocation is adjusted daily with a *Slap & Clap* technique, showing that there is generally about 30% free space in the pens.

- The comment *not all sheep can lay down at the same time* is absolutely wrong in my experience and from the observations and comments of the Independent Observers.
- Extra-long haul: repeated observation clearly shows there is no need for additional space allocation as the sheep and cattle adapt to peck order and routine. Plenty of photos available.
- It would be good if some people making these decisions actually enjoyed a couple of voyages with someone available to point out activities instead of coming on (or sitting back) with preconceived opinions.

Opinion 2:

At this time, the most valid work is that of Petherick and Phillips and that should be used as the basis of any decisions.

Opinion 3:

Petherick and Phillips themselves state that “these suggested space allowances require verification within a range of species.” They state that a k coefficient of 0.033 has been shown to be a coefficient that “appears to be the threshold below which there are adverse effects on welfare” within a permanent “intensive housing system”. It does not state what is adequate for a 2-3 week boat voyage.

Petherick and Phillips 2009 set the k coefficient at 0.027 for all animals to be able to lie down but go on to say that there is “insufficient data to determine whether this allowance onboard a vehicle / vessel would enable animals to move and access food and water with ease.” “These suggested space allowances require verification under different thermal conditions and for transportation.”

Dr McCarthy has defaulted to a k coefficient of 0.033 but it appears obvious that more research needs to be done to set a minimum stocking density for shipping for only a 2-3 week period. At present a vast majority of sheep shipped to the Middle East do increase weight at the current ASEL stocking densities especially in the “non-summer” period and a relatively low mortality rate is observed during this period. A large majority of sheep that are exported are within the 40-60kg weight range, this is achieved with current densities that are at a k coefficient of less than 0.027.

It would therefore be my suggestion that a k coefficient of between .027 and .033 be taken and observations by the currently mandatory independent veterinarians be taken into consideration at this level until further studies are concluded.

Opinion 4:

Suggested co-efficient of 0.033 may be somewhat excessive and has profound implications for shipping costs and export viability, without, as yet any research or data to confirm improved animal welfare outcomes

3) How would you standardise liveweights? Is it appropriate to apply a factor associated with curfew and anticipated weight during the voyage? How else can curfew and weight gains after leaving the registered premises be accounted for?

Opinion 1:

Yes

Weights should be confirmed by weighbridge averages and factored for curfew losses if applicable. Anticipated weight-gains suggested are improbable based on current feed allowances, feed quality and wastage allowance. It is likely most weight-gain is as a result of gut-fill gains post curfew. Allowance for weight-gains should be dealt with on a case by case basis, and based on exporters' expectations for that consignment, feed quality and quantity to be loaded, and anticipated loading weights. Much of this can be done as part of the AA management plan, with final adjustment of stocking density based on accurate cargo weight either by weighbridge or, where practicable, individual bodyweights at a predetermined day in pre-export quarantine.

The recommendation to use weighbridge weights at the wharf is the only way to avoid attempts to load more animals than allowed. However, feed and water curfews at the registered premises must be prohibited or compensation made. However, this may clash with the national land transport standards.

Opinion 2:

Liveweights are, in most cases, taken over scales when leaving the feedlot and therefore are totally relevant to shipping density calculations. 90% of trucking is currently within an hour of the wharf and therefore no curfew occurs in this circumstance. It is routine within the industry and in my opinion, relevant to this situation, to subscribe a percentage figure when a curfew has taken place. It is also my experience that weight gain during a voyage does not impact on the welfare and performance of the sheep

Opinion 3:

There is valid argument for calculating space allocation on final bodyweight. However, by halfway on the voyage peck orders etc have been established and any extra adjustment is not necessary. Question, since the sheep are not weighed before, or after unloading, who has determined that there is a 2.4kg weight gain? Those of us that work the ships would guess very little weight gain that is not a result of gut fill.

Opinion 4:

There may not be a standardised method available. Each RP and port has varying infrastructure from pen weighing to certified weighbridges. Alternatively to standardisation, exporters should clearly define how weights are determined and live-stock are separated. This is required for feed, water and space calculations yet rarely does DAWR have enough operational understanding to audit it. AAVs should be used to verify this information and provide feedback on voyage outcomes and the exporters preparation method

4) What is the financial impact of changing on board stocking densities?

Opinion 1:

- Welfare comes at a price that the exporter must bear.
- The financial impact of densities is obviously immense. Calculation of a breakeven point is difficult but will be more compounded by the Heat Risk Assessment Model and will directly affect the exporters ability to supply adequate numbers of sheep to the Middle East for a full 12 months of the year.
- There are already significant increases in exports and investments moving to competing countries which export sheep.

Opinion 2:
Significant. The financial impact of the McCarthy recommendation to give a decrease in total on-board numbers will put the economics of the enterprise at risk. The people paying will be the sheep industry of Australia. There should be consideration given to the consequences of making the industry uneconomic. The flow on effect to farmer, transporters and rural communities will be significant.

Additional AAV comments on stocking density
ASEL does not currently specify requirements for trough space. This is a significant oversight as morbidity and mortality is likely strongly correlated to both stocking density and feed trough space. Trough space, feed quantity and frequency of delivery are primary drivers of live-stock behaviour on live export vessels and have substantial impact on morbidity and mortality.

- For sheep this is likely to contribute substantially to rumen stability, inanition, salmonella and other enteric diseases, injuries and respiratory disease subsequent to trampling etc.
- For cattle, trough space and feeding behaviour is likely to be a major contributor to lameness, accidental deaths, bloat, inanition and variable weight loss in individual pens.

There is a substantial knowledge gap and urgent need for applied research to identify and resolve these issues on livestock export vessels. It is likely an allometric model is also appropriate for feed trough space and will be influenced by feed quantity and feeding frequency.

6.2 Registered premises stocking densities

1) Are stocking densities at registered premises an issue?

Opinion 1:
Yes, in some circumstances for cattle.

- RPs which are NFAS feedlots are experienced operators and provide adequate space for food and water access.
- Acclimatisation to intensive environment and adaptation to a new diet requires further investigation.
- National feedlot guidelines and NFAS principles should apply for RPs as these are proven acceptable, audited standards to managed cattle in intensive environment.

Opinion 2:
- Stocking density in intensively managed environments have significant interactions with pen size, flooring, slope, shelter, ventilation, and environmental conditions. It is unlikely particular stocking densities are appropriate for different registered premises.
- Where stocking density in registered premises is to be implemented these should be referable to equivalent industry standards (for example, NFAS accreditation standards for outdoor housed cattle) or equivalent overseas standards, (for example that used in dry lot dairies, or intensively housed beef cattle feedlots e.g. FASS. Guide for the care and use of agricultural animals in agricultural research and teaching 3rd edition)

Opinion 3:
What are the mortality rates of RPs vs a domestic feedlot premise? An RMR value for RPs would indicate if there is an issue

2) What do you think about the options presented in the 2012-13 review? Should any of those options now be implemented?

Opinion 1:

Depends, where did these recommendations come from?

Opinion 2:

Agree with recommendation in option 2 to increase space to 9m2 form 10 days.

3) What are the cost implications of changing stocking densities in registered premises?

Welfare improvements have a price, the exporter and registered premises owner is responsible for it.

7 On board resources and management

7.1 Management of bedding, and ammonia levels

1) What specific requirements (i.e. volume, usage, and components) should exist for bedding material for export consignments of cattle and sheep? Should these apply to all voyages or only some? Should it apply to all species or only some?

Opinion 1:

Provision of some bedding should be provided on all voyages

- Bedding material is not only required for specific pen use, it is useful to manage water spills and on loading and discharge ramps to prevent slipping.
- All cattle voyages that require washing would benefit from the provision of bedding especially slaughter weight live-stock with potential for more leg injuries and pressure sores
- Sheep voyages have less requirement for bedding, however, it is useful to manage the pad moisture in times it becomes wet.
- More bedding is required, particularly based on stocking type. Bedding type should be tailored to the ship. Industry feedback is needed for requirements on bedding type

Opinion 2:

- Available bedding on long haul voyages is generally insufficient. This is especially the case for managing the faecal pad in some sheep pens in humid conditions, and management of lame cattle on long haul voyages. Consideration needs to be given to bedding requirements based on voyage length for long haul voyages.
- There needs to be additional research, and substantial extension on existing research as to best practice bedding management of sheep and cattle on long haul voyages, and what the minimum bedding requirements should be. This is especially critical for long haul voyages and extended long haul voyages where deck washing is limited by extended periods in protected/regulated waters etc.

Opinion 3:

No

I consider the current recommendations are sufficient – especially if rational judgements are made by the management team.

- Where is the shipboard evidence that bedding affects the ammonia levels?
- Is there any evidence that ammonia levels actually cause problems?
- Is there any data on ammonia levels at floor level rather than at standing height where the ‘crew eye’ test seems to be of value?
- Is there any ship board data on hydrogen sulphide levels? I have an impression that H_2S tends to rise at different, and irregular times and could be responsible for some of the respiratory changes we see. Again, is that at floor level, and what precipitates the rise – which

does not last for long. Some research, but the intermittency could make successful results difficult.

Opinion 4:

Please note: we now use vacuumed wood shavings in preference to 'sawdust. There are many problems with the use of sawdust.

- Sheep: the main use is for 'mopping up' water spills from broken pipes/troughs. There is some use on occasional decks and deck regions under high humidity and urine output. This is confined to small areas and is better managed by increasing airflow with additional large fans.
- Cattle: There are different opinions on board between head stockpersons and/or AAVs. Example: one stockperson would use all the sawdust on board on their two allocated decks while others on the same ship would use none. My observations are that there is no difference in welfare or health (except for one specific problem). The main use is for mopping up flooded areas – usually following wash down.

The bigger problem: The literature does not show the relationship of sawdust use with pinkeye. On two ships where sawdust was used on all walkways and all decks, 12% of cattle had early pinkeye the following morning. Half of these continued for about a week with about 10 remaining as 'double-blinds'. Significant new cases occur after every washdown.

On my last two ships we have not used sawdust on walkways during loading and wood shavings were put down as floors in any pen became wet/flooded. Pens were cleaned with shovel – there was no washdown. Small number, 500 cattle in total, – but no sore eyes and no lameness.

I am not convinced that a 1 cm layer of sawdust at loading is of any benefit in lameness or moisture control – and causes eye problems. Use of sawdust/wood shavings at the discretion of the management team is a more sensible and considered option.

Comments from the IO: this much maligned pad is actually a benefit to both sheep and cattle.

Straw bedding is a management restriction – it blocks pumps during washdown.

2) Should the standards be amended to alter the specifications currently in place to manage provision of bedding for live-stock and ammonia levels on vessels? If so, what would you suggest?

Opinion 1:

- Bedding is difficult to source and any increase will face objection.
- There are positive welfare benefits from more bedding.
- Bedding requirements for sheep are much lower than for cattle.

Opinion 2:

I have seen no voyages where extra sawdust would have made any difference. There is the consideration of different people using different amounts. As previously stated, I have reduced use to wet pens and hospital pens without apparent problems – and certainly reduced both sheep and cattle eye problems. Question: where is the data to indicate use to manage an appropriate faecal pad and who would decide? Consider the comments of the Independent Operators before making changes.

Opinion 3:
Need NH3 reporting on ship to answer this. They would vary between decks and pens.

3) Should there be a requirement that bedding is used to manage an appropriate faecal pad? Should a statutory reserve amount of bedding be required as a contingency amount to manage any flooded pens?

Some bedding is needed in cases of flooding.

A faecal pad is usually established in a day or two.

4) What would be the costs of any changes to the current arrangements?
Vacuumed wood shavings are very expensive – but cut to the chase: who would pay?. The farmer of course.

7.2 Water, fodder and chaff requirements on vessels

1) Should paragraph 3A.3.2 (c) be amended as follows:

a) 'For all long-haul and extended long-haul cattle voyages, at least 1 per cent of the fodder required for cattle must be chaff and/or hay.'

Opinion 1:
This allowance is insufficient. Further research is required as an industry priority.

Opinion 2:
Yes

There should be further research on voyages to validate the importance of the use of roughage at the start of the voyage. The ability and appropriately store and manage roughage must be taken into account.

Opinion 3:
I consider the current requirements are sufficient. As regards to hospital pens, that's possibly 50 sheep at maximum – it has never been limiting in my experience.

Opinion 4:
No

I believe the current recommendation is sufficient. The amount required is a fraction of the amount fed (kg/hd) and the frequency (days). Our undisclosed work shows, within limits, the amount fed is more important than frequency. Additional baled hay can be a wash-down problem. Chopped hay (high density bales) and chaff are suitable.

2) There are a range of issues relating to shipboard fodder requirements being reviewed within Industry. In the interim, are there any other changes to water, fodder and chaff requirements that need to be addressed?

Opinion 1:

AAVs would like to see chaff, superchop or hay available on all voyages. Roughage is valuable for managing certain lines of livestock and for the maintenance of normal rumen function (especially on SEA voyages where live-stock have had limited time in a registered premises to fully transition to a pelletised ration).

Roughage is important for the maintenance of normal rumen function. Chaff of 25-40mm fibre length is ideal. Hay has the disadvantage of blocking/causing problems with pumps during washdown.

Opinion 2:

Use of hay and superchop is sometimes impractical and cost prohibitive from northern ports. Hay can also cause problems with washing and drainage.

Water, fodder and chaff requirements should be harmonised between AMSA MO43 and ASEL

3) Should automated water systems be mandatory on all voyages? What would be the cost associated with this change and who should pay?

Opinion 1:

No

Constantly available water should be mandated not the way it is delivered. Then ship owner should be responsible for this provision and the mechanism by which it is provided.

Opinion 2:

Yes.

Having worked on an extra long-haul shipment where there was no functional automatic watering system I cannot but agree. In welfare terms 24-hour access is essential as both cattle and sheep rush dry troughs when re-filling. The ship owner would normally pay for this – then amortise it back to the Australian farmer. Water supply itself is usually very good with few interruptions as storage tanks are changed.

4) Should there be extra fodder provisions for voyages longer than 10 days?

Opinion 1:

Yes

- Voyage length is often underestimated due to loading and discharge days not being included in calculations.
- There should be at least 3- 5 days fodder contingency in addition to allocations based on a realistic voyage length.
- The ASEL review committee should request DAWR compare NOI submissions of voyage length with actual voyage lengths.

- Voyage time for the purposes of calculating fodder allowances should include an allowance for fodder consumed during loading and discharge, and this should not encroach on fodder contingency planning. Contingency days should be additional to voyage length (including loading and discharge), and should be available as a genuine contingency for unexpected delays, miscalculations and other events. Feed contingencies should be commensurate with voyage length, and would be most easily calculated as daily feed allowance PLUS % contingency.

8 On board personnel, animal management and care

8.1 On board personnel and the monitoring and management of animals

1) In addition to the ship's crew, which on board personnel should accompany live-stock export consignments? Should this apply to all consignments? Please provide details.

Opinion 1:

An AAV should be allocated on all voyages as outlined in the ASEL, in addition to all voyages with live-stock that require verification of compliance under DAWR approved management plans; voyages that cross the equator and are carrying live-stock identified has susceptible to heat stress (i.e. Bos Taurus cattle from southern Australia ports to China); all voyages carrying pregnant live-stock and all vessels which have had a notifiable mortality event or issues which require verification of operational improvements completed.

In addition to an AAV there should be at least one accredited stockperson per 2500-3000 cattle or 30000 sheep on all live-stock export voyages. While the AAV can also fill the role of accredited stockpersons this should not be applicable for voyages over 2500-3000 head.

Opinion 2:

There should be an AAV on all live-stock export voyages by sea

Opinion 3:

One AAV and one stockperson for 40000-60000 sheep are adequate resources to monitor live-stock and provide animal husbandry requirements. It is more useful to have another dedicated crew member than another Australian Accredited Stockperson on these voyages.

Onboard personnel requirements should be based upon experience for both vets and stockpersons.

- **AAVs.** I agree with the *Option 2* requirement providing the AAV has previous voyage experience.
- **Stockpersons** allocated at 1 per 40,000 to 60,000 sheep and 2,500 – 3,000 cattle (depending on classes) is reasonable. I would recommend that there be a minimum of two stockpersons on any voyage with one being regarded as a 'head' (experienced) stockperson. This should apply to all consignments.

The work can be very physically demanding, and most stockpersons have (from my experience) a very poor knowledge in disease recognition and in the required definitive treatments, usually overtreating.

We will soon run out of available vets if there is a requirement for AAVs on all voyages: it's not for everyone.

2) Should the current requirements in the standards be amended and, if so, what elements should be changed?

Opinion 1:

Yes, the standards should be amended

- The current standards do not meet community expectations for the provision of care available to live-stock during an export consignment by sea

Opinion 2:

- In the (reformatted) ASEL, I agree with clauses (a), (c), (b, i; A, B & C).
- Clause (b, ii) should be changed to include a *minimum of 2 Australian Accredited Stockpersons.*
- Clause (d) should, in some manner, include that all stock handling personnel undergo the ESCAS training from MLA. I do this on each voyage and it is very beneficial – over time. The sending of MLA contractors to the Middle East is not much advanced upon an expensive waste. Better to engage the ship crews.
- The current 'stockpersons course' is quite inadequate for onboard responsibilities and activities and includes material that is of little use to the trainee stockies.

3) What is your view of the three options for AAVs accompanying voyages proposed during the 2012-13 review, and why?

Opinion 1:

- The three defining consignment types which require AAVs are based on risk and covers the minimum requirements for AAV presence.
- In the current environment, were the regulator/government are requesting further transparency and reporting of outcomes during voyages, AAVs would be the best resource to provide this service. AAVs provide expert professional services in animal health and welfare and are experienced to provide both support and comprehensive reporting.
- As an alternative to an IO, AAVs could be engaged on a rotation systems by DAWR (or another organising body like LGAP)to service voyages and provide professional services and reporting requirements for the livestock export industry.

Opinion 2:

I support option 1 with the addition of "on all long- and extra long-haul voyages'. This will give clear recommendations for voyages into and through the Middle East region, for pregnant animals, and will allow latitude for the Department to make other orders when required: used judiciously of course!

4) Does the requirement for Independent Observers now in place modify or change the need for AAVs to accompany some or all voyages?

Opinion 1:

- The requirement for an IO has been a reactionary political decision and reflects a failure of the on-board monitoring interpretation by DAWR. Intermittent auditing and verification of ASEL

compliance, vessel conditions and reporting requirements have always been in the scope of DAWR but never enforced or utilised.

- An IO replaces the need for an AAV on voyages where AAVs were not mandatory or primarily providing regulatory reporting information; or where the individual care requirements of livestock are minimal (sheep voyages or South-East Asian cattle voyages). IOs provide a substantial increase in cost burden to exporters.
- Better animal welfare outcomes would be provided by AAVs on all voyages through provision of training and technical support to the vessel crew and stockperson, and by providing the exporter and government with meaningful reports.
- The requirement for an IO on all voyages is an ineffective use of resources. An experienced AAVs can provide objective data and use footage to verify ASEL compliance.
- Due to cost and space allocation considerations, placing an IO on all voyages would reduce the use of AAVs on voyages where they are not required by regulation.
- AAV's and Stockpersons are capable of diligent and appropriate monitoring, treatment and reporting of animal welfare indicators if they are properly resourced and the appropriate systems are implemented. IO's are a significant impediment to smooth, efficient provision of animal care on vessels and are unnecessary and detrimental to shipboard morale and a constructive work environment.

Opinion 2:

- Short haul voyages provide a learning opportunity for new AAVs.
- AAVs are an underused resource for improving welfare and health of live export live-stock.
- It depends on the expertise of the independent observer.

Opinion 3:

- Under the rules of appointment, the IO is present as an observer engaged for, and by, the department. The IO may not be accredited or have sufficient experience to fill a position that requires an experienced AAV.
- Accreditation as an AAV is open to any registered veterinarian who completes the on-line course requirements. The online course outlines regulation requirements – there is nothing in it about decision making for welfare and health during the voyage (or at the feedlot). There is no pre-training course for AAVs and no requirement to attend the Livecorp Stockpersons course. I recommend that all newly accredited AAVs undertake at least one voyage with an experienced AAV before being fully accredited. I am at present managing an AAV booking service: we are insisting on such a requirement – and it is not causing problems.

5) What do you believe the roles and responsibilities of the following personnel should be, and why?

a) AAV

Opinion 1:

- AAVs are professional service providers who are engaged by exporters to provide legislated reporting requirements to the government as outlined in the AMLI Act, Export Control Order, ASEL v2.3 on specified voyages.
- In addition to DAWR reporting requirements AAVs are engaged by exporters to carry out voyage instructions on all voyages they accompany. As experts in animal health and welfare AAVs provide:
    - Monitoring of live-stock health and welfare.
    - Treatment and or isolation of sick or injured animals.
    - Recording health and welfare for reporting and feedback purposes
    - Post-mortem investigations of dead or euthanised animals and reporting of likely cause of death or illness respectively
    - Liaison with captain, officers, stockpersons and crew to meet acceptable animal husbandry, animal monitoring and timely identification and treatment of sick or injured live-stock.

In addition to regulatory requirements AAVs should be involved in:

- Epidemiological investigations of mortalities
- Review of mortality investigations with input sought from DAWR
- Review of voyage planning and voyage success with exporters

Decisions on health and welfare including observation, ‘possible’ diagnoses, rational treatment or disposal, post-mortems; and to keep and report records of such. It is also the role of the AAV to monitor the ship’s records of environmental data, feeding and water. The AAV should not be prevented from devolving activities to the stockperson when assured of their competencies.

Opinion 2:

AAV’s have limited capacity to provide substantial additional improvements to animal welfare over experienced, competent accredited stockpersons. This is because the AAV has limited influence over conditions on board, stocking density and facilities available to implement appropriate veterinary care additional to that provided by accredited stockpersons

Opinion 3:

There generally appears to be consistent understanding of the separation of roles onboard. The problem comes in the ‘authority’ for decision making, especially with regard to health and welfare.

It must be recognised that the only person in this whole industry with *skin in the game* is the AAV. If there are any problems with welfare, disease management or the use of registered drugs, the AAV

can lose government accreditation and veterinary registration: everyone else can go somewhere else. The captain to an oil ship!

Thus, it is incongruous that a stockperson can make decisions, diagnoses and treatments without, or 'over' the authority of the AAV. There is no clear definition for the authority of the AAV in any Department rulings or in the exporters' contracts. Again: the vet is the only one with everything to lose.

b) Stockperson

Opinion 1:

- Stockpersons are an essential and valuable resource for all live-stock voyages. Australia sets a worldwide standard with the training and capability of stockpersons engaged to accompany live-stock voyages. The number of stockpersons required, and a mentor system, should be further developed by industry to support this valuable resource into the future.
- The stockperson is the manager of live-stock activities and facilities; they are the bridge between the AAV and the ship's crew. The role includes inspection of all allocated animals for any adverse signs, discussion of problems and treatments under AAV supervision. They also observe stocking densities and adjustments, isolation of animals, monitoring of feed/water. There is a large overlap of the two roles.
- Experienced competent accredited stockpersons are essential to:
    - Co-ordinate with exporter and vessel for implementing loading, stowage and discharge plans.
    - Provide and facilitate animal husbandry requirements including feed and water access.
    - Liaise and work with officers and crew to monitor maintenance, feeding and watering.
    - Monitor crew performance and provide guidance and feedback to officers
    - Schedule cleaning and washing cycles in collaboration with officers for best animal welfare outcomes.
    - Provide individual treatment to sick and injured live-stock (under supervision of an AAV if applicable) during the voyage.
    - Conduct post-mortems and detail findings (under supervision of an AAV if applicable) during the voyage.
- If an AAV is present on a voyage, the stockperson can provide an additional independent EOV report on their own findings
- Where there is both an AAV and a senior stockperson on board, the roles should be complementary and the best outcomes are likely to occur where overall management of live-stock is a shared responsibility and both work co-operatively at similar levels of responsibility/authority.
- All vessels should sail with a highly competent stockperson and there should be formal qualification recognition and ongoing training of senior stockpersons.

- There is a very poor understanding of diagnostics and related treatment (or non-treatment) options. Many stockpersons, especially if they have done many voyages without a vet, too often mis-treat or over treat.
- Both the AAV and the Australian Accredited Stockperson must have a close, and operational relationship with all the crew. They must have daily discussions with the Chief Officer and Bosun.

6) If AAVs are to be placed on more or all voyages, what is the additional cost and who should pay?

- Currently AAVs are required by DAWR on all voyages greater than 10 days and other voyages at the discretion of DAWR. They must meet regulatory reporting requirements as well as voyage instructions set by the exporter to manage health and welfare.
- AAVs provide professional service and advice for the management of animal health and welfare. AAVs should be engaged by exporters to manage consignments above regulated department requirements in line with risks identified on a consignment and resources available to manage live-stock on the vessel.
- If AAVs are placed on all voyages, their ability to give individual treatment above the capability of an accredited stockperson should be considered as this is often restricted by appropriate handling equipment availability.
- The additional cost associated with AAVs needs to be considered in line with recent requirements to have independent observers on all voyages.
- AAVs would be better placed on all voyages instead of IO as they could provide real-time advice and support to manage animal health and welfare in addition to performing the comprehensive reporting requirements required by IO.
- If an AAV is placed on all voyages, an IO should not be required on “low risk” voyages (or those that are currently defined as not requiring an AAV)
- AAV’s should only be placed on all voyages if there are substantial changes to available resources for treatment and hospital pen management. Veterinary interventions can then be applied that will result in significantly better outcomes than those achieved by the basic veterinary care provided by accredited stockpersons. For cattle, this requires the availability of appropriate cattle handling equipment to treat head and leg problems, and substantial changes to hospital pen allocation, design and management.

7) Is it a practical requirement for stock handlers on board to be able to observe all animals at all times during a voyage? If not, what requirement should exist to ensure animal health and welfare is appropriately monitored during a voyage?

Opinion 1:

- Every animal should be observed at least twice daily. There should be adequate resources on a vessel to perform these inspections and provide necessary care to sick or injured live-stock.

- Resources required will be dictated by the consignment risks associated with voyage length, route, discharge port and type and class of live-stock loaded, consideration should also be given to the specific design of the vessel regarding ease of live-stock management.
- While ASEL should define a minimum standard of resources, AAVs should be consulted to provide exporters with guidance on the resources required for a specific consignment.
- The minimum of 1 stockperson required for all voyages hinders the ability to effectively monitor all live-stock, the availability of more personnel should be considered and defined. These personnel don't necessarily have to be Livecorp/Australian Accredited, but a known level of training and experience would be expected.
- Two tier sheep decks make it difficult to monitor and manage animal welfare. Phasing out of these vessels will improved the ability to observe and monitor live-stock.

Opinion 2:

Sheep on 10 decks, 7000 per deck. No, it's not practical for the Aust Stockier and AAVet to observe all animals at all times. Training and monitoring of the crew can make up for this. Some of the crew are very good – others not. Normal routine would be for the stockies to inspect all pens, isolate where necessary in the mornings and in the afternoon. The AAVet also inspects all pens in the morning and selected areas and hospital pens in the afternoon.

It must be understood that deaths occur fully at random between pens and decks, and between most classes of stock. Angus/Black cattle require additional monitoring and over-fat sheep or big horned sheep can be problems.

Question: who is suggesting, and what data exists, to indicate that animal health and welfare is now not being appropriately monitored during voyages? This maligned assumption is certainly not shared by the I.O. reports. Consider the low percentages of deaths, on non-event voyages.

8.2 Requirements for vulnerable/special classes of animals

1) Are there specific requirements that need to be in place for vulnerable or special classes of live-stock, which are currently not addressed in the ASEL? Which categories of stock and what additional requirements are needed? Could these be managed under specific management plans, or departmental discretions?

Opinion 1:

Yes

- As better records and epidemiological data is collated by industry and the regulator, vulnerable or special classes of live-stock will be further identified. Some classes may be defined as requiring management plans for certain markets or at certain times of year. In general, older live-stock transported long distances before sea transport are less stoic to temperature changes and stressful events such as yarding, drafting, transport.
- Cull for age cows - anecdotally in AAV experience, these animals have higher mortality and morbidity levels in both Bos Indicus and Bos Taurus breeds. This class needs 7-10 days in

quarantine to prepare for the intensive environment on a vessel, and additional space or allometric adjustments on stowage plans to ensure that all animals can lie down.

- Cull for age ewes - anecdotally in AAV experience and on review of voyage statistics, this class has higher mortalities during May to October and may need additional management requirements. Anecdotal evidence suggests less stress tolerance in hotter periods, however, this requires more research as mortalities may be related to inadequate time to adjust to the intensive environment and may be managed by the provision of additional space on the vessel.
- Cull for age rams - anecdotally in AAV experience and on review of voyage statistics, this class is more affected by lameness and is less heat tolerant on voyages from May to October.
- The definition of cull for age needs clarification and may be better stipulated as greater than a certain age and weight for each type.

Opinion 2:

- What management plans? Question: please define 'departmental discretions'? At the moment they only inspect a sample of stock. And give no advice of problems prior to loading, or likely problem responses.

2) Should the requirements in the standards be amended to address concerns raised about safeguards for vulnerable/special classes of animals? If so, what changes should be made?

What are the concerns that are occurring?

To provide an answer to this question data and information about the assumptions of vulnerability is required. Safeguards could be managed in ASEL such as setting weight or age limits for vulnerable species. Alternatively, this could be addressed and audited through management plans.

9 Minor amendments

AAVs can provide further valuable input to the TAC in many areas. However, the tight timeframe provided has not afforded a full collation of information in this "AAV ASEL review submission."

AAVs welcome a workshop or further specific questions the TAC may have on the practical and operational effectiveness of any amendments to animal welfare outcomes.