

# Review of the Australian Standards for the Export of Livestock

Working Draft – Reformatted Standard  
30 October 2018

Submission from the Australian Veterinary Association Ltd



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## About us

The Australian Veterinary Association (AVA) is the national organisation representing veterinarians in Australia. Our 9,500 members come from all fields within the veterinary profession. Clinical practitioners work with companion animals, horses, farm animals and wildlife. Government veterinarians work with our animal health, public health and biosecurity systems while other members work in industry for pharmaceutical and other commercial enterprises. We have members who work in research and teaching in a range of scientific disciplines. Veterinary students are also members of the AVA.

## Executive Summary

This submission makes comment on the *Review of the Australian Standards for the Export of Livestock (ASEL) - Working Draft – Reformatted Standard*<sup>1</sup>, dated 30 October 2018 (the draft standards). Reference to the Stage 2 Report (the Report)<sup>2</sup> is also made where applicable.

There are some recommendations and proposed changes to the draft standards that the AVA supports. However, overall, the AVA is disappointed in that many of the proposed changes are minimal and insufficient to avoid adverse welfare outcomes. Many of the science-based recommendations made by the AVA in our submission to the ASEL Stage 2 Issues Paper have not been incorporated into the new draft standards. We believe that this minimalistic approach to reform of ASEL will not achieve the improvements necessary to safeguard the welfare of exported animals.

The AVA agrees with the intent of the review as specified in the Stage 2 Report that *“There is merit in amending the standard once; or at least as few times as possible.”* Which is why we are disappointed to see that in section 1.1.1 of the Report, under the heading “Matters for Monitoring” and with respect to issues such as stocking densities, panting scores and bedding, the approach of the Technical Advisory Committee has been to implement the absolute minimum requirements and re-assess in 12-18 months’ time; this seems to contradict the former statement. It would be more appropriate to implement these requirements allowing a margin of error (rather than absolute minimum) so that, if found to be suitable, no further changes might be required going forward.

It is mentioned throughout the Report that further research is required on many aspects of live animal export, and this seems to be the rationale behind maintaining the status quo or minimal change in many cases. Instead, the AVA recommends use of the precautionary principle, which enables decision-makers to adopt precautionary measures when scientific evidence is uncertain and the stakes are high.

It appears instead, that the Technical Advisory Committee (TAC) have chosen a very conservative approach with little change from the 2011 version of ASEL, and heavily weighted in favour of keeping costs to a minimum. This seems contrary to the stated objectives for the standards of three clear animal welfare outcomes: animals fit to export, appropriately prepared, and maintenance of their health and welfare throughout the voyage. Given the revelations of serious welfare issues in the past, “minor tweaks” to the standards are unlikely to result in the reform that is needed. The Australian community has an expectation

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<sup>1</sup> Source: <https://haveyoursay.agriculture.gov.au/33007/documents/91279>

<sup>2</sup> Source: <https://haveyoursay.agriculture.gov.au/33007/documents/91277>

that animals undergoing live export will be treated appropriately, and that their welfare will not be sacrificed to ensure ongoing economic viability of the industry.

### **Summary of AVA recommendations:**

1. The AVA does not support the proposed liveweight range for cattle permitted for export. Cattle greater than 500kg represent a heat stress risk and are highly prone to debilitating foot and leg injuries, and pressure sores. Only a limited proportion of affected animals can be treated on board, and this is a WH&S risk to the attending personnel.
2. *Bos taurus* cattle should not be sourced from south of 26° latitude south between 1 May and 31 October for voyages that will cross the equator. This is a high-risk period for heat stress in cattle, and the AVA has provided a table on page 9 demonstrating that cattle sourced from these zones have Heat Stress Thresholds (HST) well below the temperatures that will be encountered in equatorial regions and the northern hemisphere during May to October.
3. At all other times of the year (between 1 November and 30 April), an HSRA must be done for *Bos taurus* cattle sourced from south of 26° latitude south if their journey will cross the equator.
4. All cattle with body condition score of 4 or more represent an unacceptable heat stress, lameness, deck injury and pressure sore risk, and should not be considered suitable for export.
5. A 25 mm length limit should apply to hair sheep breeds as well as wool sheep. This is to reduce heat stress risks, and allow easier monitoring of the animals during daily inspections. The legs must be shorn to reduce faecal accumulation during the voyage.
6. The proposal for only 1 clear day between shearing and loading for export of housed sheep is not supported. One day is vastly insufficient to allow cuts to heal prior to exposure to the faecal load on board ships. Sheep should have 6 days after shearing to allow healing of wounds before shipment.
7. The minimum liveweight for export of alpacas and llamas should be 20kg. Animals 3 months of age that have not achieved that weight are suffering ill thrift.
8. Proposed hold times at Registered Premises need to be extended. Cattle should be given 5 clear days, to allow time to recover from road transport and adapt to the pellet ration. Sheep should have 7 clear days to allow adaptation to pellets, to reduce subsequent risk of inanition and salmonellosis.
9. The AVA supports provision of bedding to all cattle irrespective of port of loading and length of journey. This is an improvement over the former ASEL exemptions which were in place. However, the quantities specified in the draft standards are insufficient to give assurance that the risk of lameness and injury will be mitigated.
10. Flooring design and maintenance is a major concern on board ships and a significant contributor to animal morbidity. The live export standards have the ability to go above the minimum requirements under Marine Order 43 and should do so in order to reduce the number of foot and limb injuries as a result of inappropriate flooring on many vessels.

11. The AVA supports the requirement for HSRA on all voyages that will cross the equator at all times of the year, consistent with our recommendations in previous submissions. However, we have serious concerns about the proposed stocking densities as shown in Appendix H.

There is no published evidence to support the  $k$ -value of 0.030 chosen by TAC and the AVA opposes the use of a  $k$ -value less than 0.033 at any time of the year.

The limited published evidence to hand indicates  $k$ -values below 0.033 risk adverse welfare outcomes. Given the adverse outcomes of the recent past, it is extremely concerning that TAC would risk setting a stocking density  $k$ -value at a level *below* that which has been stated as a precautionary minimum in the published literature.

The AVA notes that a  $k$ -value of 0.033 has been proposed for sheep travelling to the middle east during May to October. However, the AVA does not support continued export of sheep to the Middle East from 1 May to 31 October. This is because, irrespective of stocking density, thermoregulatory physiology indicates that sheep on live export voyages to the Middle East during May to October will remain susceptible to heat stress and die due to the expected extreme climatic conditions during this time.

12. The AVA reiterates that adequate trough space is an essential requirement and inextricably linked to spacing allocation considerations and prevention of inanition, trampling etc. The AVA is disappointed this has not been addressed in the draft standards.

13. Ammonia concentrations should be measured and recorded daily and the standards should specify 25ppm as the upper limit.

14. At least one veterinarian should be on board every live shipment, regardless of voyage length. This must include voyages transporting buffalo and camelids.

15. Notifiable events should be triggered by morbidity levels, not just mortality. All morbidity and mortality data should be recorded and reported on every voyage, with a view to making immediate, continuous and ongoing improvements to animal welfare on every future voyage. The data should be subject to epidemiological assessment, and made publicly available to ensure transparency.

16. AVA supports the requirements for daily pen-side reporting of animal welfare indicators, but a significantly higher number of pens must be assessed than currently proposed. This must include areas of the deck at risk of higher temperatures and poor ventilation.

17. The AVA supports requirements for daily reports and end-of-voyage reports to be supplied directly to the responsible government agency.

18. The AVA does not support the exemption on daily reporting for journeys less than 10 days; daily reporting should apply to all voyages, irrespective of journey length.

19. The AVA does not support the use of lay pregnancy testers for cattle and buffalo and submits that this must be always a registered veterinarian.

20. The AVA supports the TAC recommendations that HSRA must be applied to all livestock voyages that cross the equator, at all times of the year, consistent with the AVA's recommendation in our previous submissions.

21. The AVA also supports the TAC recommendation that the period 1 May to 31 October continue to be applied as defining the “northern summer”.

22. The AVA has suggested changes to the Body Condition Score charts proposed for inclusion in the standard (Appendix A), as well as standardisation of the pastoral zone maps in Appendix N.

23. A number of additional pieces of equipment must be added to Appendix F to ensure sufficient devices are in place to protect animal welfare on every deck of the vessel.

24. The AVA does not support the panting scores for sheep as shown in Table 11 of the TAC Report. A respiratory rate of up to 80 breaths per minute is not ‘normal’ for sheep. The AVA strongly recommends that Table 11 is replaced with the one developed by the AVA in its submission to the HotStuff review, and provided again in this submission (page 21). This provides an accurate method to define and assess heat stress in sheep.

***Comments on specific standards follow.***

## **AVA comments on specific proposed standards**

Note: extracts from the standards are in italics in text boxes. AVA comments follow each text box

### **Definitions**

#### ***Camelids***

*Includes camels, llamas, alpacas and vicunas.*

Vicunas and guanacos are undomesticated South American camelids (alpacas and llamas are domesticated). Either include both vicunas and guanacos in the definition, or (preferably) exclude both species and just include alpacas (list first because > 200,000 in Australia) and llamas (list second because only around 10,000 in Australia) in the definition to read: “Includes camels, alpacas and llamas.”

Similarly, the definition of Livestock should reflect this change, to now read:

#### ***Livestock***

*As defined under ‘live-stock’ in the Export Control (Animals) Order 2004, livestock (live-stock) means cattle, sheep, goats, deer, buffalo and camelids (that is, camels, alpacas and llamas) and includes the young of an animal of any of those kinds.*

#### ***Reportable level***

*A reportable level is:*

- *A mortality rate for a species of the percentage listed below, or three animals, whichever is the greater number of deceased animals:*
  - *sheep and goats: 1 per cent*
  - *cattle and buffalo: 0.5 per cent*
  - *camelids: 2 per cent*
  - *deer: 2 per cent, and*
- *An average daily mortality rate for a species of the percentage listed below:*
  - *cattle exports: 0.025 per cent*
  - *buffalo exports: 0.025 per cent*
  - *sheep exports: 0.05 per cent*
  - *goat exports: 0.05 per cent.*

The AVA queries the use of a 2% figure for camelids and deer, suggesting that 1% would be more appropriate for welfare reasons and consistency with sheep.

Further discussion about reporting of mortality (and morbidity) is provided later in this document under the heading ‘**Reporting welfare outcomes – section 4F**’.

## Outcome 1 – Animals are fit to export

### Cattle – proposed liveweights under draft standard

#### **1A.3.2 Rejection criteria—Cattle**

- (a) 1A.3.2(c): For export by sea, cattle must have an individual liveweight between 200 kg and 650 kg inclusive, unless otherwise agreed by the relevant Australian Government agency.

The proposed liveweight range for cattle is not supported.

As stated in the AVA submission to the ASEL Stage 2 Issues Paper<sup>3</sup>, only cattle weighing less than 500 kg should be shipped (Simpson 2012). All cattle greater than this weight represent a heat stress risk and are highly prone to foot injuries and pressure sores.

The TAC Report<sup>4</sup> acknowledges that cattle between 500 and 650 kg are at increased risk, and that outcomes for animals over 500 kg should be monitored over the coming 12 months to assess whether the upper threshold weight should be reduced from 650 kg. Given that we already know there are risks for animals over 500 kg, the precautionary principle should apply here, rather than delaying implementing a better standard for 12 months.

There is already evidence that heavier cattle are prone to injury:

*“It was commonly reported to the authors that heavy cattle (over 380 kg) will, depending on the surface of the pen floor and the stability of the ship, incur more leg injuries than other cattle”* (Banney, Henderson et al. 2009).

There are also a number of direct reports from Australian-Government Accredited Veterinarians (AAVs) which support an upper limit of 500 kg, and this information was conveyed to TAC in the AVA Submission to ASEL stage 2 Issues Paper<sup>3</sup>.

Larger animals are more likely to suffer from lameness on board ship, and the lesions typically seen are extremely painful conditions. Foot lesions include claw abrasions, sloughing of claw or hoof wall exposing the sensitive hoof tissues, and exteriorisation of the pedal bone (P3), due to slipping and abrasion on rough and/or raised flooring. Animals develop swelling and open sores on their fetlocks and carpi due to trauma during lying or rising. Affected animals will become unable to rise and will lie in prolonged lateral recumbency once it becomes too painful to stand. This predisposes to development of further abrasions and pressure sores and necessitates euthanasia either during the voyage or post-disembarkation as affected livestock have no commercial value at destination market.

AAVs further report that the presence of lame cattle on board ship is extremely problematic, not only because the animals suffer severe pain but also because it diverts veterinary and stockperson time to this task and away from other important duties. These animals are inevitably culled at their destination.

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<sup>3</sup> Source: <http://www.agriculture.gov.au/SiteCollectionDocuments/animal/lae/asel/australian-veterinary-association.pdf>

<sup>4</sup> Source: <https://haveyoursay.agriculture.gov.au/33007/documents/91277>

The conditions described above are extremely painful, plus lead to myonecrosis, dehydration, starvation and euthanasia because affected cattle are unable to rise. AAVs do attempt to treat these claw injuries on board – by gluing a wooden or plastic block to the unaffected (or less affected) claw in an attempt to elevate the affected claw off the ground, to prevent further trauma and allow it to heal. AAVs report that they apply as many blocks as they can, but time, resources and poor facilities mean that often only a small percentage of affected cattle receive treatment. It also puts AAVs, stockpersons and crew at risk with respect to workplace safety (back injuries and hand injuries/infections) when attempting to apply blocks in sub-standard, unhygienic conditions.

Please see the AVA submission to the ASEL Stage 2 Issues Paper<sup>5</sup> for further detail on the above.

### **Sourcing of cattle – Bos Taurus cattle south of 26 latitude south**

**1A.3.2(d)(iii):** *Bos taurus* cattle from an area of Australia south of latitude 26° south must not be sourced for export on voyages that will cross the equator between 1 May to 31 October (inclusive) unless:

- A. *an agreed livestock heat stress risk assessment (HSRA) indicates the risk is manageable as per the testing criteria specified in these standards, and*
- B. *if female, have been determined to be not detectably pregnant and tested in accordance with requirements of a valid pregnancy test.*

The AVA position is that *Bos taurus* cattle should not be sourced from south of 26° latitude south between 1 May and 31 October at all. This is a high risk period, and as recently as June 2018 there was a high mortality event in a shipment of cattle from southern Australia to China:

<https://thewest.com.au/business/agriculture/deaths-mar-china-cattle-trade-ng-b88870012z>

Extract from the AVA submission to ASEL Stage 2 Issues Paper<sup>5</sup>, page 18:

*“The “standard” heat stress threshold (HST) of *Bos taurus* beef cattle is 30°C wet bulb temperature. However, when adjustments are made for month and geographical zone, body weight, body condition score and coat length, their heat stress threshold decreases to temperatures that are commonly encountered at equatorial regions and in the northern hemisphere between May and October (**Table 4**; (Stacey 2017)).”*

**(Table follows)**

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<sup>5</sup> Source: <http://www.agriculture.gov.au/SiteCollectionDocuments/animal/lae/asel/australian-veterinary-association.pdf>

**Table 4.** Adjusted heat stress threshold (HST) wet bulb temperatures (WBT °C) for *Bos taurus* beef cattle of 450 kg body weight [typical in live export (Banney, Henderson et al. 2009)] being shipped from different zones in southern Australia in July as determined using HotStuff v5.0 (Stacey 2017). (Source: The AVA submission to ASEL Stage 2 Issues Paper)<sup>6</sup>.

Parameter	Body weight (kg)	F weight (kg)	Core temp (°C)	BCS (fat score)	F condition	Coat length	F coat	Zone *	Acclim zone (°C)	F acc	Base HST (°C)	Tcore-HST (°C)	Adjusted HST WBT (°C)
Standard <i>Bos taurus</i> beef	300	1.00	40	3	1	mid	1	std	15	1	30	10.00	<b>30.0</b>
<i>Bos taurus</i> beef <b>July</b>	450	1.08	40	3	1	winter	1.1	3	10	1.13	30	13.4	<b>26.6</b>
<i>Bos taurus</i> beef <b>July</b>	450	1.08	40	3	1	winter	1.1	1	7	1.2	30	14.3	<b>25.7</b>

Hence, section 1A.3.2(d)(iii) should be amended to:

*“Bos taurus* cattle from an area of Australia south of latitude 26° south must not be sourced for export on voyages that will cross the equator between 1 May to 31 October (inclusive)”. With no exceptions.

At other times of the year (between 1 November and 30 April), an HSRA must be done for those sourced from south of 26° latitude south if their journey will cross the equator.

#### **Cattle – Body condition score**

**1.A.3.2(d)(iv):** *Bos taurus* cattle with a body condition score of four (4) or more must not be sourced for export from, or exported through, any area north of latitude 26° south from 1 October to 31 December (inclusive).

AVA position is that all cattle with body score of 4 or more represent an unacceptable heat stress and a pressure sore/deck injury risk and should not be considered suitable for export. Fat cattle should not be exported any time of year, and should be slaughtered locally.

Further, AAV comment from northern Australia is that the highest temperatures on land in northern Australia are often in late February. Hence this ban should be extended to 31 March. This is because the wet season is more commonly in January-March and long distance road journeys should not be permitted at this time.

**1A.3.3 Rejection criteria – Buffalo** – feral animals are likely to suffer additional stress as they are not adapted to human contact, confinement and transport. Further research on welfare impacts and conditioning times is warranted.

<sup>6</sup> Source: <http://www.agriculture.gov.au/SiteCollectionDocuments/animal/lae/asel/australian-veterinary-association.pdf>

## Preparation of sheep – shearing issues

### **1A.3.4 Rejection criteria—Sheep**

1.A.3.4(d) *In addition, for export by sea, all sheep must:*

- (i) *Have a liveweight of more than 32 kg*
- (ii) *Have wool not more than 25 mm in length*

*Note: This requirement does not apply to hair sheep breeds.*

(iii) *Either be:*

- A. *10 days or more off shears when sourced, if accommodated in paddocks at the registered premises, or*
- B. *shorn during the 10 day period before export, and given at least one (1) clear day between shearing and loading for export, if accommodated in sheds at the registered premises.*

The AVA position is that the 25 mm length limit should apply to hair sheep breeds as well. There is evidence that unshorn sheep have a higher core temperature (Beatty, Barnes et al. 2008). Moreover, AAVs report that it is more difficult to monitor sheep (respiratory rate/abdominal shape/perineum etc.) during daily rounds when unshorn.

The AVA notes the TAC recommendation to reduce minor cuts/leg injuries and infections by not shearing the distal legs – the AVA does not support this, as faecal accumulation on legs during the voyage will be a consequence of leaving limbs unshorn. To reduce cuts and injuries, use competent shearers.

The proposal for only 1 clear day between shearing and loading for export for housed sheep is also not supported, and does not satisfy the TAC recommendation that an appropriate period of time should be provided between shearing and export to assist in managing the risk of infection. One day is vastly insufficient to allow cuts to heal prior to exposure to the faecal load on board ships. AAV advice is that sheep should have 6 days after shearing to allow healing of wounds before shipment.

**1A.3.5 – Rejection criteria – Goats** – feral animals are likely to suffer additional stress as they are not adapted to human contact, confinement and transport. Further research on welfare impacts and conditioning times is warranted.

## Camelids

### **1A.3.6 Rejection criteria—Camelids**

*(a) All female feeder or slaughter camelids must have been determined to be not detectably pregnant and tested in accordance with the requirements of valid pregnancy test*

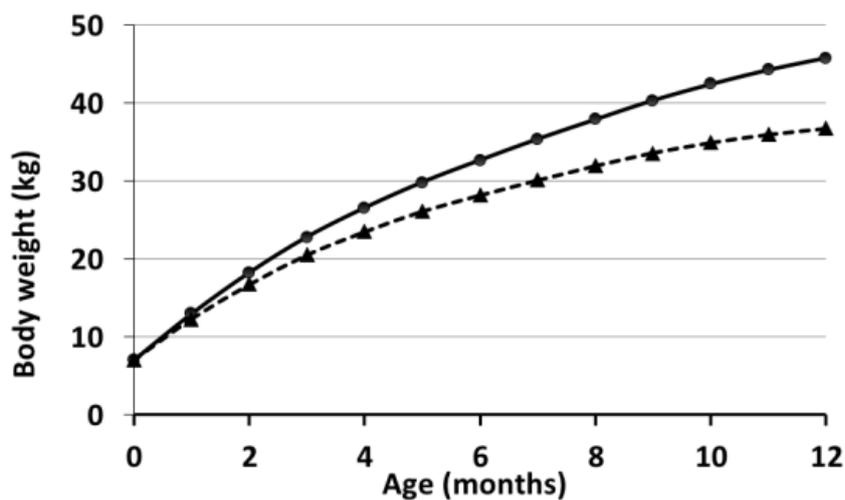
AVA recommends addition to this sentence of “by a registered veterinarian” (J Vaughan, pers. comm.).

*(e) For export by air:*

- (i) *Alpacas and llamas must have a liveweight of more than 12 kg and be at least three (3) months old.*
- (ii) *All female camels must be tested in accordance with the requirements of a valid pregnancy test and determined to be no more than 250 days pregnant at the scheduled date of departure.*

The AVA position is that the minimum weight in this section should be 20 kg.

Alpacas should double their birthweight of 7-8 kg in the first 1-2 months of life (Figure 1). Therefore, an alpaca or llama that is 12 kg and 3 months or more in age is suffering from ill-thrift. The minimum weight must be changed to 20 kg to ensure only healthy animals of that age are transported (Vaughan 2017).



**Figure 1.** Solid line on graph represents what is reasonably and ideally achievable by alpacas grazing pasture with appropriate supplementation in Australia. Dotted line represents a minimum goal for crias in Australia. [Source: page 22 (Vaughan 2017)].

Note that in (e) (ii), it should read that: “All female camels must be tested in accordance with the requirements of a valid pregnancy test by a registered veterinarian and determined..... etc” (J Vaughan, pers. comm.) and to be consistent with 4G.1.3(c).

Feral camels are likely to suffer additional stress as they are not adapted to human contact, confinement and transport. Further research on welfare impacts and conditioning times is warranted.

**1A.3.7 – Rejection criteria – Deer** – feral animals are likely to suffer additional stress as they are not adapted to human contact, confinement and transport. Further research on welfare impacts and conditioning times is warranted.

## **Outcome 2 – Animals are appropriately prepared in order to mitigate the risks to their health and welfare during export**

### **Location of Registered Premises**

**2.A.1(a):** *The location of the registered premises used to hold and assemble livestock prior to transport to the vessel, must not be more than eight (8) hours journey time from the port of embarkation.*

The AVA position is that there should be minimal distance between registered premises and the port of embarkation, in order to minimise transport fatigue.

### **Preparation - Holding times**

**2B.5** ***Animals are appropriately prepared for the export voyage***

*To ensure animals are appropriately prepared for the export voyage:*

- (a) *Livestock must be prepared for the voyage in the registered premises in accordance with the relevant registered premises hold times and corresponding feed requirements in Appendix D.*

AVA does not support the hold times as set out in Appendix D.

Cattle should be given 5 clear days, to allow time to recover from road transport and adapt to the pellet ration. Two clear days is inadequate, especially considering that cattle may have spent more than 24 hours being mustered to yards, another 24 hours in yards with unfamiliar feed, then another 36-48 hours on trucks to arrive at the Registered Premises.

Sheep should have 7 clear days to allow adaptation to pellets. Barnes and co-workers demonstrated that 5 days is necessary to get shy feeders onto feed, so the current proposed 3 days is not sufficient to address the risk of inanition and salmonellosis (Barnes, Wickham et al. 2018).

## Outcome 3 – Animals are responsibly managed in order to at least maintain their health and welfare during the export voyage

### Bedding requirements

#### **3A.3.3 Bedding**

- (a) For export by sea, bedding must be provided in accordance with the following specifications:
- (i) For all sheep voyages, sufficient sawdust, rice hulls or similar material must be carried on the vessel and applied as needed to manage moisture in the sheep manure pad, avoid slipping during loading and unloading, and manage incidents such as pen flooding.
  - (ii) Cattle and buffalo on:
    - A. voyages of 30 days or less must be provided with sawdust, rice hulls or similar material to be used predominantly for bedding at a minimum rate of four (4) tonnes per 1000 m<sup>2</sup> of cattle pen space per application, with a minimum of four (4) tonnes per 1000 m<sup>2</sup> of cattle pen space for each subsequent washdown

AVA suggests that the use of the word 'sufficient' in relation to sheep bedding is too vague and this should be improved by addition of a prescribed amount per 10,000 sheep.

The AVA supports provision of bedding to all cattle irrespective of port of loading and length of journey. This is an improvement over the former ASEL exemptions which were in place.

However, according to our calculations, the minimum amount of 4 tonnes per 1000m<sup>2</sup> will provide less than 2 cm of bedding per square metre:

(4000 kg/1000 m<sup>2</sup> = 4 kg/m<sup>2</sup> and if sawdust weighs 0.21 g/cm<sup>3</sup> or 210 kg/m<sup>3</sup> (<https://www.aqua-calc.com/calculate/volume-to-weight/substance/sawdust>))

then 1 cm deep m<sup>3</sup> = 2.1 kg sawdust. Thus, 4 kg/m<sup>2</sup> is less than 2 cm in depth of bedding.

*"The primary desired outcome from using bedding material on ... ships is to minimise the incidence of lameness and skin abrasions at loading, during the voyage and during discharge"* (Banney, Henderson et al. 2009)

The quantities specified in the draft standards are insufficient to give assurance that this risk will be addressed.

### **Flooring**

Additionally, and as submitted in the AVA submission to the ASEL Stage 2 Issues Paper, flooring is still a major concern on board ships and should not be exempt from these standards. Though minimum specifications for flooring are covered in Marine Order 43, the live export standards have the ability to go above the minimum requirements under Marine Order 43 and should do so in order to improve the poor outcomes currently occurring due to inappropriate flooring on vessels.

AAVs report that poor flooring leads to abrasions, joint and hoof damage. Flooring must not be too uneven (no raised mesh) and/or abrasive or slippery in pens. Flooring must be improved in all ships so legs and feet are not abraded which is a significant current concern.

## Stocking densities

### **3A.4 Stocking density and penning arrangements**

(a) For export by sea, prior to loading the animals:

- (i) a load plan for the vessel on which the livestock are to be transported must be prepared in accordance with the stocking densities and pen-group weight-range tolerance specifications in Appendix H, and
- (ii) for exports on voyages that will cross the equator, an agreed heat stress risk assessment must be completed and indicate the risk is manageable as per the testing criteria in these standards.

AVA supports the requirement in 3A.4(a)(ii) for HSRA on all voyages that will cross the equator at all times of the year, consistent with our recommendations in previous submissions.

However, we have serious concerns about the proposed stocking densities as shown in [Appendix H](#).

All tables in Appendix H should have the *k*-value that has been used in calculation of space allocation shown in brackets at the top of each column called “Minimum pen area” to ease the interpretation of tables.

The AVA notes that a default *k*-value of 0.030 is proposed for cattle, sheep and goats, and a *k*-value of 0.030 + 10% for buffalo. A *k*-value of 0.033 is proposed for shipments of sheep and goats from May to October.

The AVA supports the use of an allometric model for determining space allocation, however we oppose the use of a *k*-value less than 0.033 at any time of the year<sup>7</sup>.

While there is published literature to support a *k*-value of 0.047 (Petherick and Phillips 2009) as good practice, and 0.033 as minimum to avoid adverse welfare outcomes (Petherick and Phillips 2009), there is no published evidence to support a *k*-value of 0.030, and the TAC should provide a stronger justification for selection of this figure.

Despite the discussion in the TAC Report<sup>8</sup>, a *k*-value of 0.030 has no scientific basis. It is untenable that the TAC would choose to risk setting a stocking density *k*-value at a level *below* even that which has been stated as a precautionary minimum in the published literature (Petherick and Phillips 2009).

The *k*-value should be  $\geq 0.033$  based on disembarkation body weight for all livestock being exported by sea from Australia in *all months of the year*. Any reduction in *k*-value below 0.033 is not yet scientifically justified, and will result in animals having to “time share” their ability to rest. This puts the less dominant and more vulnerable animals at risk of inability to rest, and also increases the risk of trampling of recumbent animals. For full discussion, see the submission made by the Australian Veterinary Association to the McCarthy Review in May 2018 (AVA 2018a).

It should also be noted that the AVA does not support continued export of sheep to the Middle East from 1 May to 31 October. Irrespective of stocking density, thermoregulatory physiology indicates that sheep on

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<sup>7</sup> Source: [https://www.ava.com.au/sites/default/files/AVA\\_Literature\\_Review\\_Live\\_Sheep\\_Export\\_May\\_2018.pdf](https://www.ava.com.au/sites/default/files/AVA_Literature_Review_Live_Sheep_Export_May_2018.pdf)

<sup>8</sup> Source: <https://haveyoursay.agriculture.gov.au/33007/documents/91277>

live export voyages to the Middle East during May to October will remain susceptible to heat stress and die due to the expected extreme climatic conditions during this time. Accordingly, voyages carrying live sheep to the Middle East during May to October cannot be recommended (AVA 2018a).

### **Trough space**

We also reiterate that adequate trough space is an essential requirement and inextricably linked to spacing allocation considerations, and note this has not been addressed in the draft standards. AAVs have raised this as a particular welfare concern, for the following reasons:

Trough space and feed quantity and frequency of delivery are primary drivers of livestock behaviour on live export vessels and have substantial impact on morbidity and mortality. In sheep this is likely to contribute substantially to rumen stability, inanition, salmonella and other enteric diseases, injuries and respiratory disease subsequent to trampling etc. In cattle, trough space and feeding behaviour is likely to be a major contributor to lameness, accidental deaths, bloat, inanition and variable weightloss in individual pens. This is a consistent observation by AAVs and there is an urgent need for applied research to identify and resolve these issues on live 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.

### **Ventilation, ammonia and air quality**

#### **3B.3 Animals are provided appropriate ventilation**

*To ensure animals have appropriate ventilation whilst on the export voyage:*

(a) *For export by sea:*

- (i) *When livestock are loaded on vessels with enclosed decks, the ventilation system must be run continuously from the commencement of loading.*
- (ii) *Ventilation must be monitored daily to ensure adequate thermoregulation of the livestock.*

The AVA notes in the TAC Report that there is published evidence that 25 ppm of ammonia should be the upper limit to prevent adverse welfare outcomes, and yet the recommendation is to delay adding this to the standards until there is further research done.

The AVA queries this, given that sufficient evidence already exists to support implementation of this upper limit. Ammonia concentrations should be measured and recorded daily as it has been shown that concentrations > 25 ppm (17 mg/m<sup>3</sup>) produce adverse welfare outcomes for livestock *and* crew (MAMIC 2001, Costa, Accioly et al. 2003, Tudor, Accioly et al. 2003, Phillips, Pines et al. 2010, Phillips, Pines et al. 2012)

## Appropriate personnel to manage animal health and welfare

### **3B.5 Animals are managed by sufficient competent personnel**

- (a) *An accredited stockperson must accompany each consignment of livestock and must remain with the consignment until the vessel has completed discharging at the final port of discharge.*
- (b) *An accredited veterinarian must accompany each consignment of livestock where required by the relevant Australian Government agency and must remain with the consignment until the vessel has completed discharging at the final port of discharge.*
- (c) *Notwithstanding (b), an accredited veterinarian must accompany each consignment of livestock on voyages of more than 10 days and all voyages where there are pregnant livestock, unless otherwise agreed by the relevant Australian Government agency. The accredited veterinarian must remain with the consignment until the vessel has completed discharging at the final port of discharge.*

It is AVA policy that at least one veterinarian should be on board every live shipment, regardless of voyage length. AAV feedback to the AVA is that there should be at least one veterinarian and one stockperson per 2000-3000 head of cattle or 30,000 sheep on every voyage.

In Section (c) above, the AVA submits that all voyages where there are buffalo or camelids must also have an accredited veterinarian, due to the well recognised increased welfare risks. This the section should read:

- (a) *Notwithstanding (b), an accredited veterinarian must accompany each consignment of livestock on voyages of more than 10 days and all voyages where there are pregnant livestock, buffalo or camelids, unless otherwise agreed by the relevant Australian Government agency. The accredited veterinarian must remain with the consignment until the vessel has completed discharging at the final port of discharge.*

## **Reporting animal welfare outcomes – section 4F**

### **4F.1 Notifiable incidents**

- (c) *For export by sea, if the notifiable incident involves a mortality rate or average daily mortality rate equal to or greater than the reportable level, a report must be provided that includes the following:*
- (i) *details of the mortalities (e.g. number, species, suspected cause)*
  - (ii) *factors that may have contributed to the deaths, and*
  - (iii) *the current location of the vessel and, if appropriate, its destination and estimated time of arrival.*

As stated in the AVA's submission to the ASEL Stage 2 Issues Paper<sup>9</sup>, the AVA contends that reportable mortality rates are a crude way of triggering notifiable incidents; as stated in the TAC Report<sup>10</sup>, an arbitrary threshold percentage is a fairly blunt instrument, and does not reflect suffering (morbidity). In our view, a different approach is warranted.

Morbidity data collection has been recommended for 2 decades. For example, in 1999 it was concluded that *"there is a need for ... recording objective measurements where possible so that a performance history can be built up over time"* and *"a need for a thorough de-briefing after each voyage to discuss findings ... to improve welfare of the cattle"* (Norris and Creeper 1999).

The AVA recommends that all morbidity and mortality data should be recorded and reported on every voyage, with a view to making immediate, continuous and ongoing improvements to animal welfare on every future voyage. The data should be subject to epidemiological assessment, and made publically available to ensure transparency.

Notifiable events should be triggered by a certain level of morbidity, not just mortality. Animals suffer for prolonged periods on many journeys up until the point of death; if enough survive to not trigger a notifiable incident, this does not mean that a large number did not suffer en-route. Reporting based on morbidity (suffering) would give rise to a great deal more data to allow future improvements to be put in place.

### **4F.2 – Daily reports and 4F.3 – End of voyage reports**

AVA generally supports the TAC recommendation that: *"daily reports should include health and welfare monitoring for at least each species and class (and possibly several lines), based on an assessment of at least 1–2 pens of sheep and 1–2 pens of cattle per deck. The pens selected should be representative of the class or line, the report should include a detailed panting score, description of animal demeanour, feed and water intake (including feeding activity), a report on faecal type and manure pad scores, and a WBGT and humidity reading."*

However, given the numbers of sheep on board, and the variations possible in microclimate depending on location across any one deck, we would strongly recommend that a significantly higher number of pens per deck is inspected and monitored, in order to properly represent what is occurring on board. It should be

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<sup>9</sup> Source: <http://www.agriculture.gov.au/SiteCollectionDocuments/animal/lae/asel/australian-veterinary-association.pdf>

<sup>10</sup> Source: <https://haveyoursay.agriculture.gov.au/33007/documents/91277>

noted on ship plans during ventilation auditing which pens are in “dead zones” with respect to air movement (pen gates painted red for example), then the veterinarian should have responsibility for choosing locations and pens to give a true picture of the status of animals throughout the vessel.

The AVA supports requirements under 4F.2 and 4F.3 for daily reports and end-of-voyage reports to be supplied directly to the responsible government agency, rather than via the exporter. AAV advice is that this will alleviate pressure on them to make changes and will improve transparency of reporting.

However, the AVA does not support the exemption on daily reporting for journeys less than 10 days, and recommends that daily reporting should apply to all voyages, irrespective of journey length.

Note that the AVA does not agree with the panting score system as set out in Table 11 of the TAC Report, and strongly recommends that it is replaced with the one developed by the AVA in its submission to the HotStuff review, which is provided below under discussion of [Appendix J](#), page 21.

### **Pregnancy testing**

**4G.1.1** Note that the new name for the Australian Cattle Veterinarians’ NCPD scheme is PREgCHECK®.

**4G.1.2** (Pregnancy test for feeder or slaughter cattle and buffalo) – The AVA does not support the use of lay pregnancy testers in (b) and submits that this must be always a registered veterinarian.

**4G.1.4** (Pregnancy testing for goats, sheep or deer) – pregnancy testing of deer must be by a registered veterinarian.

Pregnancy diagnosis of cattle, buffalo, camelids and deer for live export should be performed by a registered veterinarian for the following reasons:

- 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 and professionally 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.
- Current training and accreditation standards for non-veterinary “accredited cattle pregnancy testers” are inadequate and provide a very poor level of assurance of competency and high risk of poor compliance with resultant poor animal welfare outcomes.

### **Heat Stress Risk Assessment**

**4G.2** Heat Stress Risk Assessment (HSRA) – The AVA supports reviewing this section when the (separate) review of the HSRA model is completed. The AVA supports the TAC recommendations that HSRA must be applied to all livestock voyages that cross the equator, at all times of the year, consistent with the AVA’s recommendation in our previous submissions. The AVA also supports the TAC recommendation that the period 1 May to 31 October continue to be applied as defining the “northern summer”.

It should be noted that the AVA does not support continued export of sheep to the Middle East during the period from 1 May to 31 October. Irrespective of stocking density, thermoregulatory physiology indicates that sheep on live export voyages to the Middle East during May to October will remain susceptible to heat stress and die due to the expected extreme climatic conditions during this time. Accordingly, voyages carrying live sheep to the Middle East during May to October cannot be recommended.

**Comments on appendices**

**Appendix A – Body condition scoring**

The body condition score charts need much amendment and improvement. The standards should adopt the BCS score used by industry relevant to that species and livestock class and be presented in an accurate and consistent format.

Camel condition scoring is better represented in the paper by (Faye, Bengoumi et al. 2001).

*Emir. J. Agric. Sci. 2001. (13) : 01-06*  
<http://www.cfs.uaeu.ac.ae/research/ejas.html>

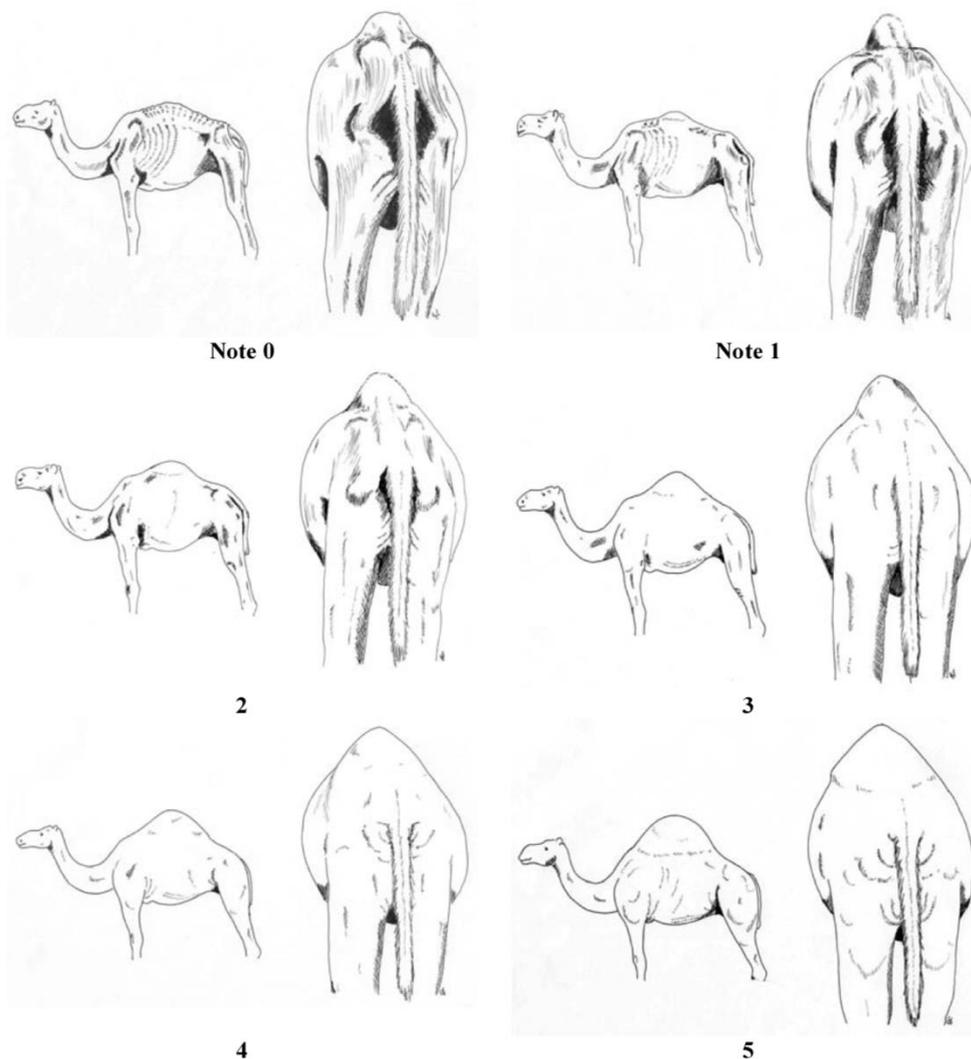


Figure 2. Body condition score (0 to 5) of the Dromedary camel (Faye, Bengoumi et al. 2001).

#### **Appendix D—Registered premises hold times and feed requirements.**

As stated above, cattle should be given 5 clear days, to allow time to recover from road transport and adapt to the pellet ration. Sheep should have 7 clear days to allow adaptation to pellets.

#### **Appendix F - Mandatory veterinary medicines and equipment**

The AVA supports the intention to update the equipment requirements when the relevant LiveCorp project is completed.

##### **Table 13 Cattle and buffalo:**

Restraint equipment is woefully inadequate in the current table. Rather than one head bale per ship, there must be one per cattle deck, as an essential WH&S requirement. There must be more than one rope halter per ship (as these may break or be misplaced) and similarly there must be more than one set of nose pliers per ship for the same reasons. There should be one per cattle deck of each of these.

Captive bolts can fail or jam. The current requirement for one per vessel is a real risk. There should be one captive bolt and pack of cartridges per cattle deck (stored appropriately on each cattle deck as deemed by Master of the ship).

Add wet bulb globe temperature (WBGT) hand-held meter x 2 to Table 13. Also, two stethoscopes.

##### **Table 14 Pregnant cattle and buffalo:**

Add 3 x stainless steel buckets and extra sets of calving ropes (as one set per vessel is inadequate – these can break/be misplaced)

##### **Table 15 Sheep and goats:**

There should be one thermometer on every deck (not 3 on the vessel)

Captive bolts can fail or jam. The current requirement for one per vessel is a real risk. There should be one captive bolt and appropriate number of packs of cartridges per sheep deck (stored appropriately on each sheep deck as deemed by Master of the ship).

Add WGBT hand-held meter x 2 to Table 15. Also, two stethoscopes.

#### **Appendix H – see above stocking density discussion page 14**

## Appendix J – Daily report pro-forma

See discussion above (section 4F) regarding daily reporting and notifiable incidents. In addition, we offer the following comment on the proposed daily reporting proforma.

In section 9 of the reporting pro-forma, we would strongly recommend that a significantly higher number of pens per deck is inspected and monitored, in order to properly represent what is occurring on board.

We also suggest a systematic approach to terminology to describe sheep and cattle faecal consistency, for example:

1 = diarrhoea  
2 = soft faeces

3 = normal pellets/pats  
4 = dry pellets/pats

Section 10, assessment of panting: currently the form suggests that only panting scores 3 and 4 need investigation. The AVA does not agree, and submits that panting score 2 is an indicator of moderate heat stress and thus should also be recorded and investigated.

### Panting scores

Further, the AVA does not agree with the panting scores for sheep as shown in Table 11 of the TAC Report. A respiratory rate of up to 80 breaths per minute is not 'normal' for sheep. The AVA strongly recommends that Table 11 is replaced with the one developed by the AVA in its submission to the HotStuff review:

**Table 1. The AVA's proposed method to define effects of heat stress in sheep, modified from (McCarthy 2018) and (Stockman 2006). The line dividing Heat Stress Scores 2 and 3 is the point beyond which sheep should not be exposed during any voyage. Sheep should not be exposed to Heat Stress Score 2 for more than 3 (consecutive) days during any voyage (where there is no diurnal variation in temperature to allow return to thermoneutral state).**

Heat Stress Score (Heat Stress Threshold/HST)	Panting Score & Respiratory character	Respiratory Rate (RR)	Approximate body temperature (°C)	Extrapolated percentage of ML within the HSRA model
0—Normal resting→active	0—Normal respiration resting→active	15-35→70	39	0
1—Mild heat stress (HST 1)	1—Increased respiratory rate	70-100	39.5+	0-35
2—Moderate heat stress (HST 2)	2—Panting	100-160	40+	36-75
3—Severe heat stress (HST 3)	3—Open mouth panting; laboured respiration	160-220	40.5+	<b>76-85</b>
4—Near death	4—Open mouth panting with tongue out; Extremely laboured respiration	Usually second stage	41+	86-100

Finally, a section should be added to the Daily Report pro-forma that addresses **ventilation monitoring**, ie:

- Fans working 24 hours/d today: Yes / No
- If no, reasons? E.g. power failure
- If no, duration in last 24 hours fans failed?
- If no, how was problem rectified?
- If no, state reasons for and total duration of failed ventilation in end of voyage report to instruct ship maintenance.

**Appendix N** – suggest standardising the 3 maps showing pastoral zone definitions for the purposes of consistency and clarity.

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